स्पंदन

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

April-June 2022

From Chairperson's Desk

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

Dear friends of J.C. Bose University of Science and Technology, YMCA, Faridabad, Electronics family, Kind greetings and warm welcome, I am delighted to present our April - June 2022 News Letter "स्पंदन."

A Chinese proverb says, "Tell me, I will forget; Show me, I may remember; Involve me, and I will understand and learn."With this philosophy in mind, we at the Electronics Department are continuing on the path of learning. This small newsletter may not do justice to everything happening in our Department, but let me assure you, a lot more is happening here in our Department. By the time this issue reaches you, new students would be lining up for admissions. I wish them an incredible journey. Please feel free to send your suggestions.

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

SEMINAR SERIES: A series of seminars has been started in the Department, in which the faculty of the Department shares knowledge with colleagues to widen the areas of expertise of peers. It began on 8th April 2022. The faculty members, research scholars, and PG students of all departments are invited to attend the same. Dr. Nitin Sachdeva and Ms. Sangeeta Dhall are the coordinators of the series. Details of all the seminars are as follows:

Interaction of microprocessors with the peripheral

On 08 April 2022, a seminar on the topic "Interaction of Microprocessors With the Peripheral devices" was delivered by the Chairperson of the Department, Prof. Pradeep Kumar Dimri. He stressed the importance and scope of the subject in his lecture. He mentioned the importance of interfacing microprocessors with a few peripherals like A/D and D/A converters, CRT, printers, Hard disks, floppy disks, and magnetic tapes.

Evolution of Wireless Generations

On 29 April 2022, the second expert lecture of the seminar series was delivered by Prof Neelam Turk on the theme of " Evolution of Wireless Generations." She mentioned the revolutionary changes in Wireless Communication in the past few decades after introducing the first generation mobile network in the early eighties. The lecture broadly covered all the field spectrums, including changes like the system, speed, technology, frequency, data capacity, latency, etc.

Trends in Microprocessors and Microcontrollers

On 20 May 2022, an expert Lecture on the topic "Trends in Microprocessors and Microcontrollers" was delivered by Prof. Munish Vashishath. His talk explained various Microprocessors and their evolution with time. He also mentioned the use of Microprocessors in television, satellite communication, Railway reservation, and air reservation systems. Overall the Lecture was received with admiration by all present.

Workshop on the "Trends of Industry 4.0"

A workshop titled "Trends of Industry 4.0" was conducted on 6th April 2022 for the faculty members and UG Students of the department, under the coordination of Dr. Rashmi Chawla and Dr. Anurag with the expertise of Mr. Kishore Narang (mentor, principal design strategist & architect, narnix technolabs pvt. ltd.). The participants were welcomed by Chairperson Prof. Pardeep Dimri and Prof. Munish Vashishth, and the event began with a discussion on the history of technology. The speaker discussed various pros and cons of the technologies. The workshop's purpose was to make students aware of upcoming industry technologies. In the end, guest speaker Mr. Narang answered the queries raised by the participants. Nearly sixty-six participants, including faculty members and students, attended the workshop.

Work-Life Balance For TECHNOCRATS

To encourage the concept of work-life balance, a five-day AICTE-sponsored Faculty Development Program on "Work-Life Balance for Technocrats" was organized by the Department of Management Studies and the Department of Electronic Engineering from 20th May to 24th May 2022. The FDP Coordinators of the program include Dr. Dushyant Shukla. Dr. Anushree Chauhan, Dr. Sunil Jadav, and Dr. Arti Gupta.

A total of 56 participants, including the faculty members of different departments of the University, faculty members of other institutes and universities, and Ph.D. scholars, have participated in the program. Twelve experts with diverse experience and expertise took up the sessions in the FDP.

Expert Lecture on EMF Radiation Myths

An Expert Lecture to remove myths about ill health effects of radiation from Mobile Towers was organized in the department in collaboration with the Department of Telecom, Haryana LSA, on 27th May 2022. Sh. Amar Relan, Director, DoT, gave a presentation on the topic & explained that the radiations from Mobile Towers are Non-ionizing & the emission levels are below the limits of DoT, Govt. of India.

Further, the prescribed emission limits in India are 1/10th of levels specified internationally by ICNIRP (International Commission on Non-Ionizing radiation protection). The expert lecture was organized by Dr. Sonam Khera, Ms. Neetu Gupta, and Ms. Gunjan Sardana. It was attended by more than 90 participants, including UG and PG students and faculty members of the Electronics Engineering Department.

Research publications:

- **Sangeeta Dhall, Shailender Gupta**, "Quantum Based Robust and Swift Hybrid Security Mechanism", Published in Multimedia Tools and Applications, 2022.
- Harish Kumar, Yassine Aoudni, Geovanny Genaro Reivan Ortiz, Latika Jindal, Shahajan Miah, **Rohit Tripathi**, "Light Weighted CNN Model to Detect DDoS Attack over Distributed Scenario", Published in Security and Communication Networks, 2022.
- Danish Ather, Suman Madan, Manjushree Nayak, **Rohit Tripathi**, Ravi Kant, Sapna Singh Kshatri, Rituraj Jain, "Selection of Smart Manure Composition for Smart Farming Using Artificial Intelligence Technique", Published in Journal of Food Quality, 2022.
- Anisha, Munish Sabharwal and **Rohit Tripathi**, "Recent Detection and Prediction Methods for Urinary Tract Infection in Humans: A Detailed Review", Published in Journal of Tianjin University Science and Technology, 2022.
- Danish Ather, Suman Madan, Manjushree Nayak, **Rohit Tripathi**, Ravi Kant, Sapna Singh Kshatri, Rituraj Jain, "Selection of Smart Manure Composition for Smart Farming Using Artificial Intelligence Technique", Published in Journal of Food Quality, 2022.
- **Taruna Sharma**, Gaurav Varshney, RS Yaduvanshi, **Munish Vashishath**, "Modified Koch Borderline Monopole Antenna For THz Regime", Published in Optical and Quantum Electronics, 2022
- **Bharat Pant, Harsh Sharma, Rashmi Chawla**, Chirag Kumar, "An IoT-based Intelligent Traffic Engagement System with Emergency Vehicles Pre-Emption", Published in International Journal of Sensor Networks, 2022.

AGE OF ROBOTICS ARMY

~By: Chirag Tyagi (EEIOT, 2nd year)

Recently, Russia Unveiled the prestigious new weapon-carrying robot. Russian engineering company Intellect Machine presented their M-81 robot, capable of carrying weapons and ammunition and firing them. This is "The army of Future. " USA and China are not far behind in this race. USA's s Big Dog, China's Quad Robot, and " GEDA" are just a few of the members of how the future armies will look.

Every country is working to provide assistance and help to their armies with the best modern technology available. The main objective is to reduce human resources and bloodshed in future wars. India is not behind in this. Recently, during the 75 Independence Celebration, the defense minister of the nation, Mr. Rajnath Singh, handed over indigenously-developed equipment and systems to the Indian Army in New Delhi.

These include Future Infantry Soldier as a System (F-INSAS), new generation anti-personnel mine 'Nipun,' sound and automatic communication system with enhanced capabilities, upgraded sights system for tanks, and advanced thermal imagers. State-of-the-art high mobility Infantry Protected Vehicles and Assault Boats were virtually handed over by Raksha Mantri, enabling the troops deployed along the borders to respond to any challenge in a befitting manner. However, there are still a lot more challenges in front of the Indian Army and the DRDO to tackle in the defence sector. India is working on the mission of "Atam Nirbhar Bharat" and currently trying to reduce its import dependency on the West and focusing more on indigenous production. Robots and AI in India still need a lot more investment in the field of education, research, and innovation, but INDIA @100 has the potential to fulfill all these dreams.

A ROUND OF APPLAUSE!

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 statistics for the academic year 2021-2022. The final placement for the passing batch of ECE and EIC 2022 showed the tremendous response of more than 70 % of Students getting placed with invites already received from top companies like Samsung, Yamaha, TCS, Accenture, Cognizant, IBM, Harman, Lutron, and many more.

- The Highest Package offered for this year is 17.34 LPA for ECE Students and 14.50 LPA for EIC Students.
- Overall, the average package this year for ECE Students is 9 LPA, and the average package for EIC Students is 6 LPA.

HARMAN CONNECTED SERVICES Total offer: 4 students	**COGNIZANT TECHNOLOGY SOLUTIONS** Total offer: 30 students

COGNEAU Total offer: 1 students	**TATA CONSULTANTS** Total offer: 3 students	**SPADE INFOTECH PVT. LTD.** Total offer: 1 students	**UNITED LEX** Total offer: 2 students
BRIGOSHA Total offer: 1 students	**BYJU'S** Total offer: 1 students	**SAMSUNG R&D DELHI** Total offer: 4 students	**SMS INDIA PVT.** Total offer: 1 students
LUTRON INDIA Total offer: 8 students	**QSpiders** Total offer: 3 students	**DECIMAL TECHNOLOGIES** Total offer: 1 students	**AIRTEL** Total offer: 2 students
TCS Total offer: 11 students	**MOTHERSON** Total offer: 1 students	**MAFFICK INSTRUMENTS** Total offer: 1 students	**SOTI INDIA** Total offer: 1 students
NAGARRO Total offer: 1 students	**MARUTI SUZUKI** Total offer: 3 students	**EFFECTUAL SERVICES** Total offer: 2 students	**SAMSUNG NOIDA** Total offer: 3 students
HMCMM AUTO LTD. Total offer: 1 students	**IBM** Total offer: 1 students	**ZSCALER** Total offer: 1 students	**INVESTWELL** Total offer: 1 students
SYNORIQ Total offer: 2 students	**IFB** Total offer: 1 students	**L&T TECHNOLOGY** Total offer: 1 students	**EFKON INDIA** Total offer: 2 students
HCl TECHNOLOGIES Total offer: 1 students	**KEKA, Hyderabad** Total offer: 2 students	**ACCENTURE** Total offer: 12 students	**ZENSAR** Total offer: 1 students
CADENCE DESIGNING SYSTEM NOIDA Provided offer: 1 students		**LEARNING ROUTES PVT. LTD** Total offer: 2 students	**BNY MELLON** Total offer: 1 students

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!!

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 of the current research projects of our industrious students:

Name: Lalit Kumar **Supervisor:** Dr Pradeep Kumar Dimri

Topic: Performance Analysis of Wireless System for IoT Application

Work: His research is based on designing a hybrid optimization model for improving the routing path, security, packet delivery ratio, throughput, and energy in the wireless system. He is also exploring improvements on an already existing model like LEACH Protocol for Energy Utilization in Wireless Sensor Networks. He also has worked on different technologies like BLE, Wi-Fi, Image Processing, Signal Processing, Cloud, and Smart Sensors.

Name: Savita Lohat **Supervisor:** Dr. Sheilza Jain and Dr. Rajinder Kumar

Topic: Performance optimization of fog computing in Iot.

Work: The next generation of fog computing is regarded to be armed with Advanced fog nodes long with powerful Artificial Intelligence and deep learning modules. IoT is the self-structured network composed of vehicles lying on the road and roadside units. It offers I2V (infrastructure to vehicles) and V2V (vehicles to vehicles) data transmission mechanisms for transmitting service messages. The work focuses on selecting fog nodes to maximize coverage and considering static and random vehicles to reduce computational time. Work includes reliably broadcasting the service message information to the intended recipient in the IoV network with the help of relay vehicles using some optimization techniques.

CRIMSON ACHIEVEMENTS

Aryan from the ECE branch,3rd year, has been an active member of IEEE. The IEEE's WIEC committee selected him for the IEEE WIE inspiring student member of the year award-2022. He also got a cash prize of USD 250 from IEEE. It makes us proud to say that Aryan has been selected among all the global IEEE regions.

Aravali College of Engineering and Management organized their technical fest, "Circuit Mania," in which Khush of ECE (2nd Year) took part and secured 2nd position along with a cash prize of Rs 500/-.

Aravali College of Engineering and Management organized 'Tech Aarambh' in which Pragati from ECE, 2nd year, secured 1st position and a cash prize of INR 1100/-.

Aravali College of Engineering and Management organized " Microfit Buddy," in which Vikas Kumar of ENC (2nd Year) took part and made us proud by securing 1st Position in the event along with a cash prize of INR Rs. 10,000/-.

Anshika (ECE branch 1st year) participated in the Technoxian World Robotics Championship held on 21-22 August at the Indira Gandhi International Stadium(IGI) with her team. In the competition, the team bagged a spot in the Top 10.

Sukhmanjot Singh of ENC (3rd year) with his team(Nataraja Bhangra) have participated in a cultural event, "Excelsior 2022 UIET Kurukshetra," hosted by UIET Kurukshetra and secured 1st position in the event.

Om Global sterling University, Hisar organized the "National Youth parliamentary debate competition" in which Aditya of ECE (1st year) took part. He bagged a spot in the top 10 best speakers of the competition.

Jayant Bhatia from ENC branch,2nd year, participated in Poster Designing competition and bagged First prize along with a cash prize of INR 1100/-.

Institutions Innovation Council, JCBUST, and YMCA organized an industrial visit to Vee Gee Industrial Enterprises, Prithla, on 16th May 2022, which was managed by two students of the electronics department, viz. Rakshit Bajaj and Gaurav Pathak. The industrial visit began with 10 minutes "Informatory Session" by Mr. Rajat Khanna (Plant Operator) & Ms. Aekta (HR & Trainee of the Plant) in their conference room. The visit was successful, accompanied by a significant strength of interactive and enthusiastic students.

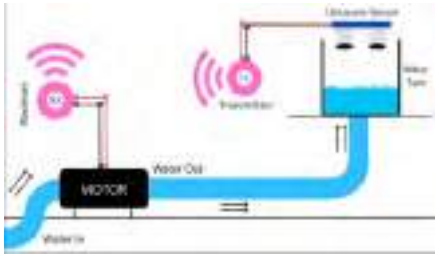
Arjun Kumar of EIC (3rd Year) participated in Varchass 22 hosted by IIT Jodhpur, representing J. C. Bose University of Science and Technology, YMCA Faridabad, in the event and secured 1st position.

A Science conclave project presentation was organized in our university sponsored by HSCSIT to celebrate Azadi ka Amrit Mahotsav from 28th April to 29th. On average, around 500 students participated in this event from secondary, higher secondary, and graduate levels. Rakshit Bajaj, representing Samarpan the technophilia, secured 2nd prize in the project presentation.

Manav Bansal of ENC (3 Year) participated in a technical event, "Lunathon," hosted by an organization spartifical. With his sheer dedication and hard work, he successfully secured 1st position in the event.

INNOVATIONS

WMA (Water Motor Automator): With Microbird The Techno Club



Wouldn't it be nice if something automatically turned off the motor whenever the tank at the rooftop got full?
We have the solution, The WMA, an automatic wireless motor controller that turns off the motor with a beep as soon as the tank is full. Keeping track of overflows in the water tank is no longer necessary.
The display will also show the water level in the tank."

Snake Xenzia: With Microbird The Techno Club

Imagine playing that old nostalgic Snake Game which we used to play on Nokia mobile on a specially designed hardware system.
We, MICRO BIRD-THE TECHNO CLUB, implemented that game in real with the help of the 900 programmable LEDs, Arduino Mega(microcontroller), and the user could play the game with the help of a joystick only. The project was a great success as it gathered a massive crowd on INDUCTION Day 2k21.

Gesture Bot: With Samarpan The Technopilia Club

It is a 4-wheel compact robotic car that can be controlled by hand gestures using a gesture controller. The bot uses the nRF module to communicate with the remote, which makes the response brisk and swift. The remote contains an MPU6050 module, i.e., a gyroscope and accelerometer, to detect hand gestures. Arduino Nano, a microcontroller, is used to give commands to the bot according to the movements detected by the remote through the hand. L298N, a motor driver, is used to supply 12V power to BO (Battery Operated) Motors.

~By: Dolly (EEIOT, 2nd year)

TEAM LEADERSHIP

Leadership revolves around a Vision, ideas, and direction. It has more to do with inspiring people regarding direction and goals than with day-to-day implementation. Leadership is a process of giving purpose to Collective effort and causing willing effort to be expended to achieve the objective. It is a process of providing meaning to Collective action and generating generous effort to be spent to achieve the purpose. Leadership is the ability of a manager to induce subordinates to work with confidence and zeal. Leaders are required to develop a future vision and to motivate team members to achieve the vision. A leader is like a shepherd. He stays behind the flock. Letting the most graceful go out ahead, the others follow, not realizing they are being directed from behind all along.

A leader has multidimensional traits that make him appealing and effective in Behaviour. They cannot maintain influence unless they exhibit vision and foresight. Only Innovation distinguishes between a leader and a follower; the leader visualizes situations and thereby helps to frame logical programs. Great leaders are always great simplifiers who can cut through argument, debate, and doubt over a solution. True leaders must have the trade known as humanity because he has to deal with humans. All leaders have one characteristic in common.

It is the willingness to confront the significant anxiety of their people in their time unequivocally. This is not much else in the essence of later. It is an adage of "stepping into the shoes of others" This is very important because Fair judgment and objectivity come only then. To conclude, Leadership is required in probably every sphere of life. Good Leadership is the door to success. In contrast, lousy Leadership is a guarantee of failure. Consequently, good leaders are what make the world go round.

Alumni Relations

Rama Kant
Director & officiating CEO
EPIC at Ambala College of Engineering
1972-1976 (Electronics & Communication

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

To do well professionally, the prerequisite according to me, is to do well personally. To elaborate a bit, one should be balanced, poised and at peace with oneself first. That leads to clarity and that brings focus in whatever one does for being successful professionally.

One good subject that has been added in the Engineering curriculum in recent years is "universal human values" (UHV). I would urge each student to take keen interest in evolving and nurturing these personal skills and tools. You will find this to be one of the most fulfilling and rewarding life experience.

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?

When I passed out from YMCA in 1976, I had no idea of what to do and where to start or pick up the thread. I had desire to make a simple instrument with Digital Display for Capacitance measurement but I did not have any facility for developing this. In those days OSAW was the leading manufacturer of scientific instruments in our town. I approached them and asked them for their support. They not only permitted me but helped and guided me to pursue my R&D in their labs. There I developed the first Digital Capacitance Meter on my own, which was the first of its kind. I started my own enterprise - Electronics India Co. (ELINCO) and started manufacturing Digital Measuring and control instruments and moved on to designing and manufacturing Custom Build instruments and solutions for Defence, Pharma, Food and Beverage, PSU/MNCs and industrial applications. In this journey, we did two international collaborations - one with Ebro Electronik GmbH, Germany and another with Lascar Electronics, England. In 2016, I started teaching in "Ambala College of Engineering and Applied Research" by devoting the second half of every day in college and shared my knowledge and practical experience of electronic sensors.

In early 2018, we realised that our country needs a boost in the manufacturing sector and thus the need of induction of new entrepreneurs. I approached the Department of Science and Technology (DST), Govt. of India with my blueprint for promotion of entrepreneurship, which received their prompt attention and approval to establish a Technology Business Incubator in our college under their "NIDHI-TBI" scheme. For this, a group of entrepreneurs came together and formed a group by establishing a unique incubator by the name "Entrepreneurship Promotion and Incubation Council" (EPIC) and still contributing as mentors and guides. For every incubate, our endeavour is to pick-up from the stage of "Idea" to "Prototype" to "Product" and finally to "Production" and all intermediary functions. Here I take the opportunity to invite you to visit www.epicambala.com. This will be an illustration of "Model Industrial Enterprise" certified by APO. This will serve as a Live Demo Unit cum Practical Training Platform for our upcoming generations of entrepreneurs.

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

When you pass out as an engineer, by and large you have two options: either seek a job in an industry or you can think of starting your own industry. In either case, most probably you will be connecting with an industry. While you are still a student, you should make an effort to connect with your incubation centre and try to imbibe this aspect as best as you can. This can be very helpful in shaping your career path.

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 facilitated by presenting planters and formal wishing letters to them.

Birthdays of The Quarter

Sh. Ramavtar (2nd April)
Ms. Kusum Arora (4th April)
Sh. Rahul (7th April)
Ms. Gunjan Sardana (9th April)
Sh. Varinder Singh (30th April)
Sh. Lalit Mohan (1st May)
Sh. Sunil Jadav (1st June)
Ms. Deepika Mundal (6th June)
Ms. Lavita Virmani (19th June)
Sh. Mukesh Kumar (30th June)

Message From Editorial Team

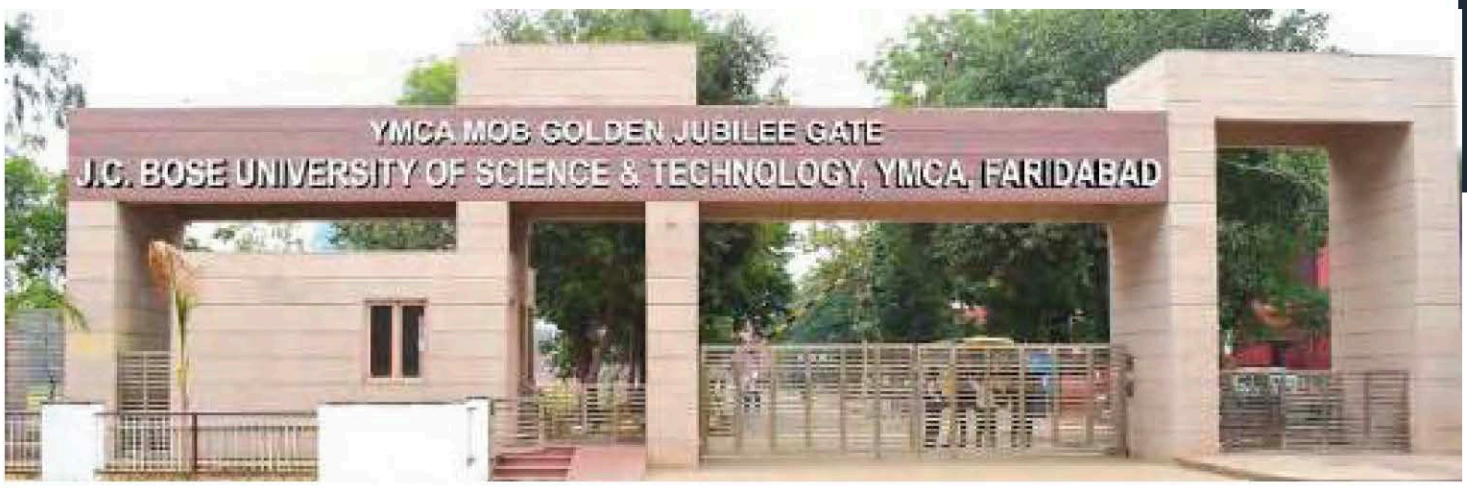
Interesting things happen when the creative impulse is cultivated with curiosity, freedom and intensity." Our dear readers, we, the students of Student Editorial Board, are elated to share a minor aspect of our department through **"स्पंदन"**, the official newsletter of Electronics Engineering Department 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.

Nevertheless, we persisted, and the end product was a wealth of knowledge and skills that we learned along the way. We are incredibly appreciative that the Department thought we were capable and provided us with the chance to express ourselves in this way.

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

The Editorial Team



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

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