# VIDYA PRATISHTHAN's KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY, BARAMATI

VPKBIET

ELECTRONICA
September 2022
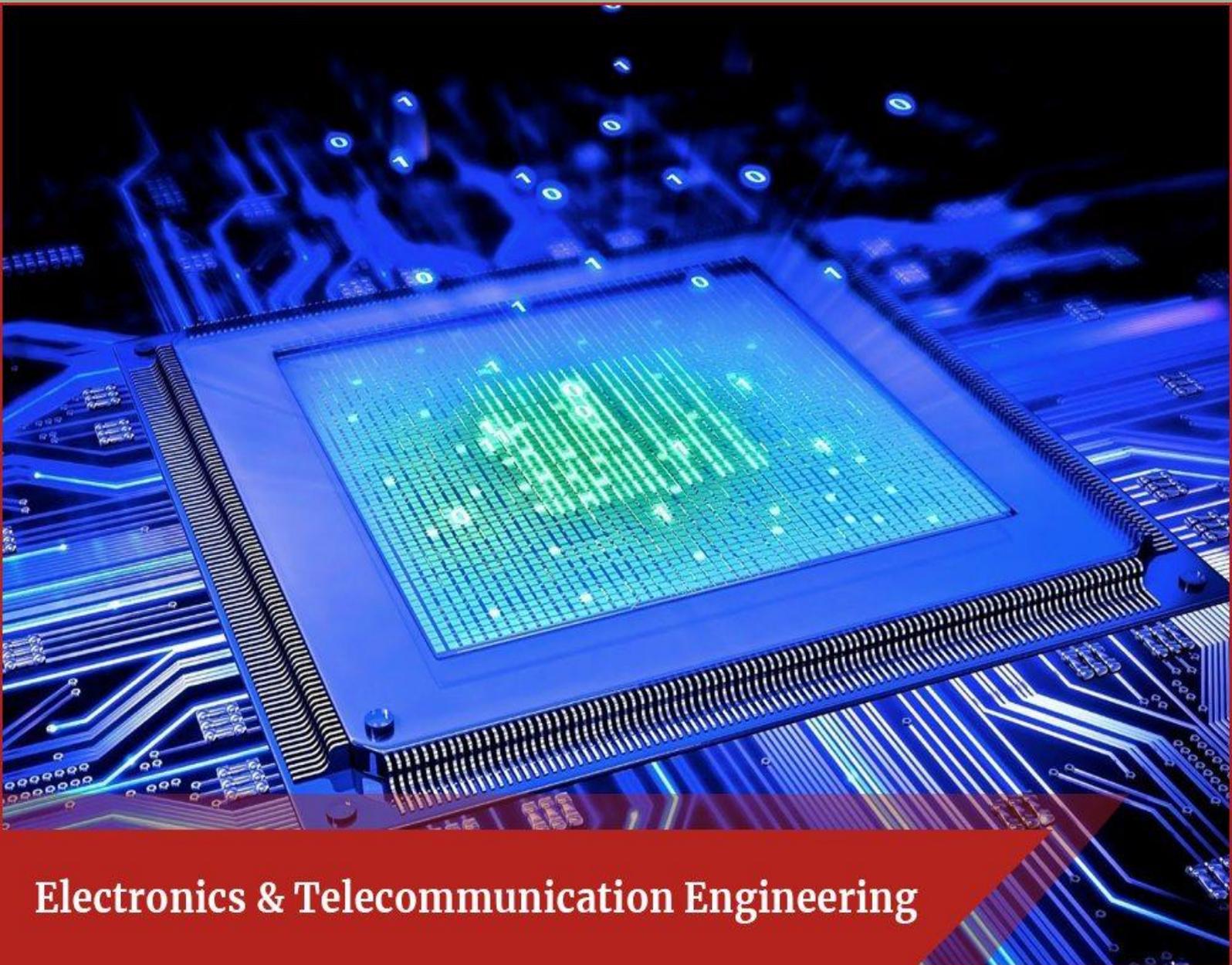
Electronics & Telecommunication Engineering

Department of Electronics and Telecommunication Engineering

About Department:

Electronics And Telecommunication Department was established in the year 2000. The intake for under graduate course is 60. Electronics And Telecommunication Department is committed to provide quality education in the field of Telecommunication. The strength of the Department is qualified and devoted faculty, motivated students and well equipped labs Our faculty and students work together to study, experiment and to solve problems in the various fields such as Networking, Security, Information Retrieval, Image Processing and Pattern Analysis.

Mission:

To develop professionals in Electronics and Telecommunication Engineering to contribute in solving technological problems faced by society.

Program Educational Outcomes:

➢ To apply the knowledge of Electronics and Telecommunication Engineering to build career in core and allied industries
➢ To prepare students for higher studies, competitive exams and multidisciplinary work
➢ To follow professional ethics and address social concerns
➢ To be lifelong learner to engross newer technologies

Program Specific Outcomes:

PSO1: To develop competencies to solve real-life problems in the Electronics and Telecommunication Engineering domain at the same time inculcate professional behavior imbibe with human values and ethics .

PSO2: To acquire the knowledge of embedded systems, communication, signal processing for hardware/software design and development.

PSO3: To demonstrate the competencies to use modern tools and techniques to design electronic systems in diverse fields as per societal needs.

Principal's Desk

Dr. R. S. Bichkar

Principal,

Dept of E & TC Engineering

VPKBIET, Baramati.

I am pleased to hear that Department of Electronics and Telecommunication Engineering is publishing the August 2022.issue of department magazine, 'Electronica'.

I feel very elated and at the same time privileged to share a few words as you go through the pages of the magazine "Electronica". Electronics and Telecommunication department endeavors to help students to seek the best from the surroundings. The knowledge thus gained becomes a ladder for them to soar into greater heights. It's often the collective effort that leads to the discovery and fulfillment of aspirations.

I am sure, the task force of Electronics and Telecommunication engineering department has taken lead, to one of the best examples of not only the land of ideas but also the forest of excellent products.

Vice-Principal's Desk

Dr. S. B. Lande
Vice-Principal,
Dept of E & TC Engineering
VPKBIET, Baramati.

I am delighted to hear that the Department of Electronics and Telecommunication Engineering is bringing their Technical Magazine 'Electronica' Issue-July 2022. It is a tool for faculty and students to develop productive technical materials and support skills. The most important thing you can get out of this fantastic effort is that it brings out the various technical and analytical skills of novice engineers. I am happy to welcome all the teachers and students who are more interested in bringing articles with more bright concepts and innovative ideas in the coming issues.

I wish the "Department of Electronics and Telecommunication Engineering" of this organization great success in all their endeavors. I congratulate the Head of the Department of Electronics and Telecommunication Engineering, the Editor and his dedicated committee for their invaluable efforts in bringing this issue to the fore. I wish them all success.

HOD's Desk

Dr. B. H.Patil
HOD,
Dept of E & TC Engineering
VPKBIET, Baramati.

Ever since the department of Electronics and Communication Engineering started its journey over two decades back, the department has been simultaneously and successfully performing the multiple roles of creating new knowledge, acquiring new capabilities and producing an intelligent human resource pool contributing in various domains of the society. The Department has always been on a high growth path and has experienced and dedicated faculty with strong commitment to engineering education who work with zeal and enthusiasm to provide a vibrant and optimum learning environment.

The growth of expertise in the department is commendable. In keeping with the department's vision, the holistic development of the students is focused upon that instills a habit of continued learning and a sense of responsibility in them to contribute towards the betterment of the society.

The periodically updated curriculum imparts technical knowledge to the students and the application based environment in the state of the art laboratories complements the same. The students are motivated to participate in paper presentation, workshops and seminars that are essential to maintaining proficiency. Cultural activities are also promoted through various clubs at the Departmental and University level.

National conference on Recent Trends in Technology and Industrial Applications

About Conference:

The objective of RTTIA-2022 is to present the latest research and results of scientific studies of UG and PG Students, research scholars, and academics and Industry professionals related in various engineering fields (Electrical, E&TC, Computing, Mechanical, Civil etc.) The conference will feature traditional paper presentations as well as keynote speeches by prominent speakers who will focus on related state-of-the-art technologies in the areas of the conference. Nowadays the academia and researchers are not only exploring various emerging and advanced technologies but also experiencing the overwhelming outcomes of interdisciplinary research. Moreover, it has been ubiquitously encouraged by the governments, research agencies and by the academic institutions. The intent behind the multidisciplinary international conference is to provide a common platform, where academia, delegates from industry and nominees from various Government and Private Universities and Institutions can present their valuable research findings and deliberate upon futuristic approaches. The deliberations will not only encompass all fields avenues of engineering but also through focus on industry and societal application.

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RTTIA 2022

Keynote Speaker:

Prof. M. S. Sutaone, Director COEP, Pune

Dr. D. S. Bormane, Chairman E&TC BOS, SPPU Pune

Dr. Vaibhav Hendre , Deputy Director, GHRCEM, Pune

Dr. Milind Bagewadi, Retired Scientist, DRDO, Adjunct Faculty, CoE, Pune.

Dr. Vinayak K. Bairagi, Associate Professor, AISSMSIOIT, Pune

Mr. Prathmesh Deshpande, Sr. Hardware Engg., Hella Emobionics Pvt. Ltd.

Faculty Coordinator:

Mr.P. K.Kadabe (E & TC department)

Mr.S.D.Biradar (E & TC department)

Mr.D.S.Yeole (Electrical Department)

Mr.V.D.Deokate (Electrical Department)

MAY-JUNE 2022 EXAMINATION TOPPERS

Congratulations on your well-deserved success. You've worked so hard for this!

Sr. No.	Class	Name of Topper	Total	SGPA
1	SE	Malshikare Shreya Rajendra	1163	8.89
2	SE	Mohite Om Madhusudan	1156	8.73
3		Zagade Pooja Ramdas	1144	8.7
4	TE	Rudraksha Aakanksha Maharudra	1183	9.86
5	TE	Yele Prajakta Namdeo	1188	9.74
6		Bacha Nikita Balaji	1189	9.6
7	BE	Sutar Shivam Ashok	1252	9.71
8	BE	Barkade Swapnali Anandrao	1191	9.24
9		Kadam Shreya Kishor	1258	9.15

5G the future

There was a time when people did not have mobile phones. However, it was only owned by very rich people. Then the technology revolution happened and mobiles started coming into the hands of the common man. That time was 2G. Mobile had internet, but very slow speed. Then 3G hit the market, and people started getting faster internet. Many companies like Airtel, Vodafone, Idea offered 3G services and then came 4G technology.

Reliance's venture JIO launched 4G directly and introduced people to the internet by providing free internet for a few months. Later, other companies also had to reduce internet rates. Here, G stands for Generation. We are currently in the 4th Generation of Indian Mobile Technology. Now 5G technology is going to start. The central government has allowed telecom companies to conduct 5G related trials.

Department of Telecom clearance for 5G trials: The Department of Telecommunications and the Government of India have given permission to telecom service providers for 5G trials. Operators that have received this permission include Bharti Airtel, Reliance, JIO, Vodafone-Idea and MTNL. These Telecom Service Providers have partnered with Original Equipment Manufacturers and Technology Providers i.e. Ericsson, Nokia, Samsung and C-DOT. At the same time, Reliance JIO Infocomm Ltd will be testing trials using technology it has developed itself.

What is 5G? 5G stands for 5th generation of mobile network. Fast network speed, uninterrupted HD surfing, excellent service and much more. Government of India has given permission for 5G trial and spectrum will be made available to telecom companies soon. Airtel has also tested the 5G network.

5G the future

Actually, 5G technology is the latest technology in cellular service. It can be called the next version of 4G network. Users will see higher net speed, lower latency and more flexibility. So far cellular technology used to focus on connectivity, but 5G cellular technology will go a step further and connect clients directly to the cloud.

Jio's own network: Reliance Jio has already confirmed that it will develop an indigenous 5G network. Jio's 5G network will be developed in India itself and its full focus will be on Made in India and "Atmanirbhar" (self-reliant) India. At the same time, Airtel had confirmed a successful 5G trial on its commercial network in Hyderabad. They have said that their network is 5G ready and now they are just waiting for permission.

Testing in different bands: Testing spectrum is offered in different bands, including mid-band (3.2 GHz to 3.67 GHz), millimeter wave band (24.25 GHz to 28.5 GHz) and sub-GHz band (700 GHz). Telecom companies have been allowed to use the existing spectrum (800 MHz, 900 MHz, 1800 MHz and 2500 MHz) to conduct their 5G trials.

Dr. B. H.Patil

HOD,

Dept of E & TC Engineering

VPKBIET, Baramati.

Artificial Intelligence is dangerous?

Computer systems are now doing many tasks that require special intelligence from humans. What exactly is this 'artificial intelligence' case? How does it work?

The 2011 quiz competition in America called 'Jeopardy' was unique. Out of the 3 contestants participating in it, one 'person' was different. Surprisingly, the same 'person', won the contest of honor. By the way, the other two players were not from weaker background. One of them had an unbroken streak of 72 consecutive unbeaten runs, while the other had won the biggest prize ever. But the difference between the 'people' who defeated these two giants is that it was not a human being, but a computer system (program). The system, called IBM Watson, beat humans in its own competition. This event brought to light the subject of artificial intelligence, the intelligent system used in computers. If a human being needs special intelligence while doing a job, if the computer system starts doing the same job, then it can be called 'artificial intelligence' (AI). Things like x-ray-like scans, diagnosis, translation, fraud detection in many financial transactions, and even playing chess are not easy. It requires great intelligence. These are the tasks that such computer systems are now doing. What exactly is this case? How does it work? Is there some mysterious, mysterious thing behind it? Some email systems now automatically suggest 'what to reply to a message'. This is not an easy task because to answer you have to read the message and then think and decide the answer. How does the intelligence to answer this come about? Roughly speaking, an artificial intelligence system looks at the messages you've received in the past and the replies you've sent to it to do this. Creates patterns/patterns by looking at how messages are answered and then, when a new message arrives, suggests a response based on the pattern. A similar system is seen in mobile while we are typing. As you type, it suggests the next word. That suggested word is often used before the word you're typing. So it is recommended. Although it seems simple to read, behind it there are many mathematical

concepts and techniques used, such as probability, statistics, mathematical calculations, etc. One thing is clear from this that past data is absolutely required to build an artificial intelligence system. This is also the limitation of this system, technique. If you don't have that kind of data, roughly speaking, you can't use artificial intelligence in the literal sense. As such, the thoughts that run through our minds are of no use unless we type them into the computer ourselves. Artificial and mechanical intelligence can work only when information is converted into numerical form in a computer. In recent times, due to the ubiquitous Internet, a lot of data has become available due to sensors embedded in devices. So much so, that if you decide to build an artificial intelligence system from this data, it won't even fit into your computer. Such deluge of data is also known as Big Data. The use of artificial intelligence is now possible as computers become faster, data storage becomes available, and new computer systems become available. There are also some good and 'free/open source' computer systems available for this. Not only for the above-mentioned examples, but also for many other difficult and complex questions, artificial intelligence is being used vigorously, some for positive things, some for negative things too. If a computer could be so 'smart', what would happen to me? What will happen to my job? It is natural to ask this question. The answer is that artificial or mechanical intelligence is bound to have some impact on our lives. Even on livelihood. Those who do creative work like writing stories, painting, and innovation are less at risk. On the contrary, their field will further flourish due to artificial intelligence. But those whose work is sloppy, what we call intellectual 'laying the planks', will have little chance ahead. Those areas will gradually be taken over by artificial intelligence. What should be our role in this? We should also learn to use it as a complement to our field. There are many excellent courses (some even free) available on the internet. Business people should try to master this subject as soon as possible. Others, even if it is not possible to penetrate deeply, should at least acquire a thorough knowledge of the subject, so that we can navigate this revolution with understanding.

Mr. P. K. Kadbe

Assistant Professor

Dept of E & TC Engineering

VPKBIET, Baramati.

Electronics Industry in India

From past few decades, the electronics sectors of India have undergone through huge ups & downs. The revolutions held has made a drastic change in electronics and various domains of India and whole world as well. Throughout these revolutions the requirement of consumers as well as business are been fulfilled. India's electronic market is popularly known for its consumption throughout the world. India is one of the largest importers of electronic goods, which are majorly offered by China. Looking towards changes taken place, from installation of 50-line manual telephone in Calcutta to use of smart phone single handedly in day-to-day life. The growth and development of electronics industry of India was crawling until the installation and setup of a computer. After that there was no looking back for Indian electronics and its cause was (1). Hindustan Computers Limited (HCL) and (2). WIPRO Information Technology Limited (WITL) as their contribution lead to huge development in India. Apart from a positive outlook, the industry underwent a severe downfall during the pandemic period. As the micro-components used in electronic devices are exported from China to India. The limited amount of sources were delivered under huge restrictions for its usability. The sales of top electronic companies and smart phone manufacturers had collapsed, which had major supplies to India.

The article mentions the contribution as well as challenges of Indian electronic industry

Key role in Indian GDP Role of Electronics and Hardware Industry in India GDP growth has been phenomenal. The rate of employment and opportunities has been increased. The sectors on small scale contributes up to 3.4% of nation's GDP. "Electronics manufacturing industry will grow from recent US$ 75 billion in 202-21 to US$ 300 billion by 2025-26" stated by the Ministry of Electronics & Information Technology. Various research centers such as GMRT, DRDO, CEERT receives huge credit for its performance throughout the journey

Challenges faced by Electronic Sector Companies are facing problem in handling internal and external resources while meeting international standards. There was a drastic fall in photocells manufacturing capacity due to short of requirements. Software and O.S demands for higher hardware requirement and within months some devices get outdated, since software upgrades are not supported. Huge requirements of power consumption, and transmission but it can't be fulfilled due to insufficient resources and environmental restrictions. As Industry is facing severe shortage of raw materials, if the manufacturing units are been increased and developed the problem may be solved.

Miss. Santoshi Pharate

Student

TE-E & TC

Events under EESA

Inauguration of EESA Notice Board-2022

On August 30th, the EESA-Electronics and Telecommunication Engineering Students Association member had organized Inauguration of the EESA and was accompanied by around 40 people including the Honorable Principal of VPKBIET, R&D Dean, HOD of Electronics and Telecommunications Department, Faculties, the EESA members, and students all together.

EESA is a platform for the Electronics and Telecommunication Engineering Students to share the knowledge, intelligence, abilities, and experiences together and rise together.

Events under EESA

Teacher's Day:

5th September 2022, on the occasion of teacher's day team EESA (Electronics & Telecommunication Engineering Students Association) had organized a program under the guidance of EESA Coordinator Mrs. Monali More and EESA President Miss Divya Parvekar.

Function started in noon at 3:30 pm by acknowledging to work and hardships of Dr. Sarvepalli Radhakrishnan, and garlanding their portrait and evoke blessings of goddess Saraswati by leno her statue. All faculties were felicitated by giving a plant as token of love from the students

Events under EESA

Engineers Day:

Drones and robotic technology can be used with the goal of improving the quality and productivity of the power grid maintenance, which will ultimately support reliability and cost-effectiveness. Automated data acquisition and management will play a larger role for predictive maintenance and will leverage drones and robotics for data collection and analysis.

Session started in morning at 11:45 Am by acknowledging to recognize and honor the achievements of the great engineer Mokshagundam Visvesvaraya. In this session Ajay was motivate to Student for work on "Robotics & Drone"

The are more than 50 Students attend the session in this session Ajay told student how basically Drone work, how to make innovative projects in robotics, Also how to get achievements, How to complete the projects. In this session Ajay also told student types of drone, types of module & typesof sensors.

CHAITANYA PRAMOD GORE
SE - ENTC

April 2022
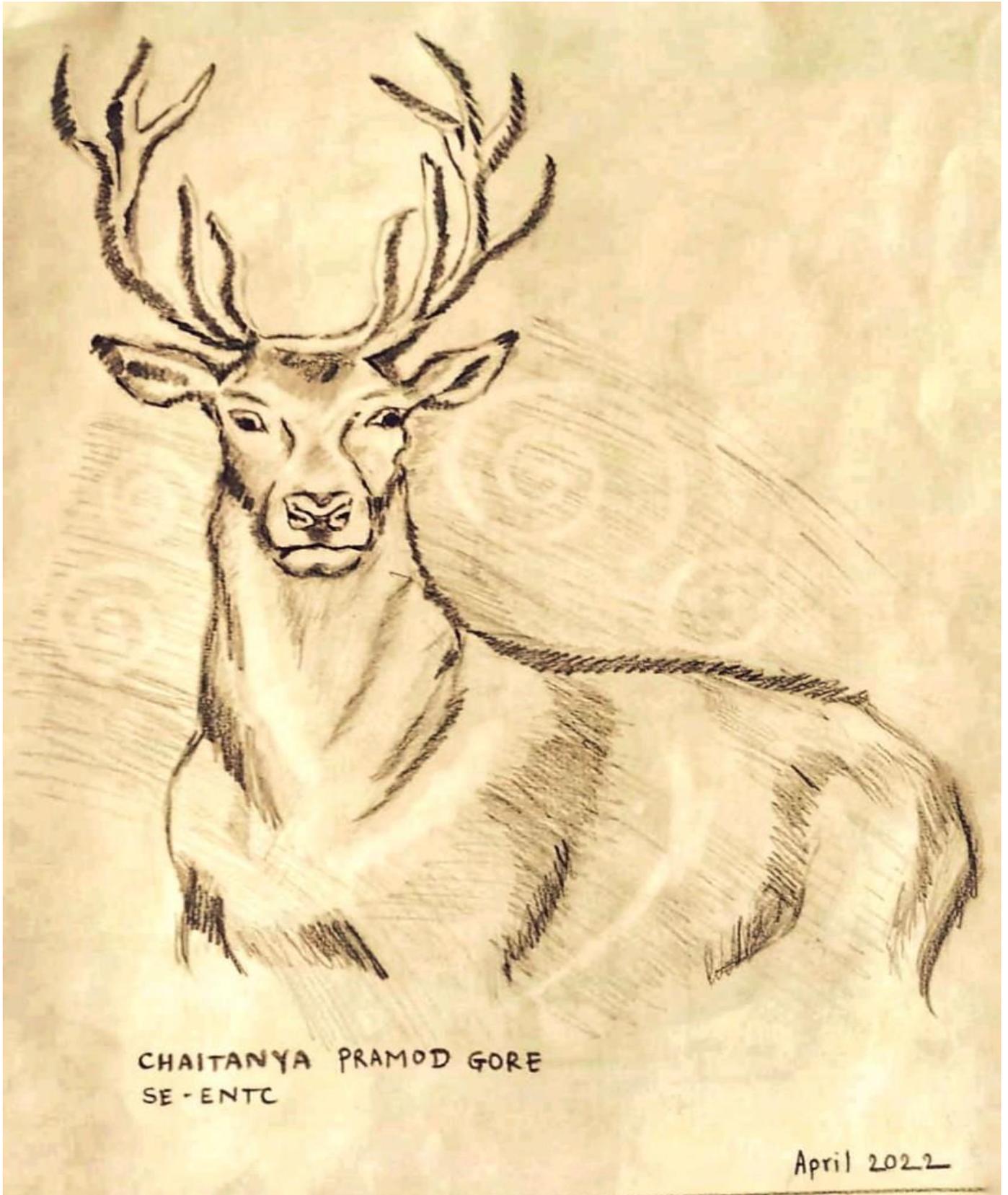
Mr. Chaitanya Gore

Student

TE-E & TC

Editor's Desk

Dear Readers,

Greetings from Team E & TC Engineering,

Hope you and your family are safe. **"Tell me and I forget. Teach me and I remember. Involve me and I learn.",** Benjamin Franklin.

The Creative minds of the Electronics and Communication department of VPKBIET have come together to present what they have always wanted to and we congratulate every student and faculty who has given their contribution. We take pride in showing you of how our very own VPKBIET's have imaginations which spread across the horizons. We would like to thank the Management and all the staffs who have supported the **'ELECTRONICA'** initiative and for having trust in the Editorial board by giving us full freedom to choose the contents and design for out magazine. The magazine should serve as a pillar of motivation for every other student who is yet to emerge as an Achiever and to carry the legacy of 'Electronica'

Thanks for your time!!

Let us know, what you think, your

suggestions are highly appreciated!!!

You can contact us at:

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EDITORIAL TEAM

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Dr. B.H.Patil (HoD)

Mrs. More Monali U. (Editor)