



VIDAYAM

SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE



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VISION AND MISSION OF THE DEPARTMENT

Department Vision

To emerge as a leading source for Electronics and Telecommunication engineering, fostering globally proficient engineers to meet the demands of evolving industry and society.

Department Mission

1. Foster collaboration with industry to facilitate the acquisition of cutting-edge technologies and contribute to the generation of up-to-date knowledge, enhancing employability and sustainability.
2. Encourage innovation, research, and development, creating an environment conducive to higher education, entrepreneurship, and lifelong learning.
3. Cultivate leadership qualities infused with social and ethical values, providing a platform for their development.

The technology area is an exciting region to be right now. Every day brings new troubles to clear up and new methods to push limitations. As future engineers, this enterprise will depend upon your clean perspectives and enthusiasm to drive innovation forward into the destiny.

Stay curious! The international of electronics and telecom changes so quickly. Believe in yourself. You each have particular skills and a power to make a difference. Your ideas and creativity will certainly help shape wherein this industry heads subsequent. Know that success isn't pretty much achievements or awards. It's additionally approximately the fantastic impact you are making. Have passion for what you do. Be determined even when it receives difficult. With the motivation, I believe you all have bright futures beforehand. Best of luck for your studies and beyond!

Dr. Prabhat Thakur



Augmented Reality (AR) and Virtual Reality (VR)

~ G.S Varsha (T.Y.)

Augmented Reality (AR) and Virtual Reality (VR) is a fascinating era that has altered the way we engage with our surroundings and enables explore the depths of creativeness. Let's embark on a journey into the coronary heart of AR and VR, going through the layers in their generation, investigating their programs, and revealing the full-size effect they're having on our every day lives. Come along as we cross into a international in which reality and myth collide, where the strains among actual and digital global blur, and wherein the future is these days.

What is Augmented reality and Virtual reality?

Augmented reality is the digital world with real world elements. It reflects the digital elements in the real world. AR is accessible through devices such as smartphones, tablets, and smart glasses that can project digital elements onto the user's perspective of the physical environment.

Whereas, when we talk about virtual reality we talk about a completely virtual world, generated by computers. VR focuses more on immersing the audience by creating real world like simulations. The users typically interact with VR by wearing headsets that hide their vision and headphones that provide spatial audio.

The Evolution of AR and VR

AR and VR technologies have come a long way since their inception. AR has its origin in early 20th century science fiction literature. Pioneers created the first AR device, "Sword of Damocles", in the 1960s, in a bulky and impractical form. AR research persisted particularly in academic and military fields until the arrival of smartphones. This allowed for the development of consumer AR experiences. "Pokémon Go" swept the world by storm in the mid-2010s, exhibiting AR's potential for gaming and entertainment. Today, AR is being integrated into a variety of industries, including education, healthcare, and retail, and is evolving further with the development of compact AR glasses and headsets.

The Future of AR and VR in Metaverse

The metaverse is a virtual world in which people can communicate using different kinds of technologies. Although everyone has their own vision for the concept of metaverse, they all are anticipating a network of virtual worlds that users can enter at once in real time. It is intended to be a realistic representation of the real world. AR and VR will have a crucial role in the ongoing development of the metaverse since augmented, virtual and mixed reality will work together to create Extended reality known as XR.



XR technologies enable users to interact with virtual environments, objects or information that is generated by the computers. This will serve as a bridge between real and virtual realms since XR enhances immersion in the virtual world. Although it is difficult to predict that the future may hold for this concept of metaverse It is expected that by 2030, the Metaverse would have grown to the point where individuals will spend more time in artificially generated worlds than in the real world.

Augmented Reality and Virtual Reality play a significant role in the development and shaping of the metaverse. So, these technologies are no longer confined and are actively shaping our reality. They are reshaping industries, enhancing education, and pushing the boundaries of entertainment. We can only fathom the tremendous experiences and opportunities that AR and VR can bring in the years to come as they continue to grow. Accepting this digital revolution will open the door to a future limited only by our imagination.

Data Science

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Data science is booming and active in the sector of Information Technology. It has become an important requirement for most companies. But what is the hype about? Data science, as its name suggests, is all about understanding, processing, and storing data sets and information obtained from processes, systems, and analysis. This is of utmost import for IT giants storing millions, if not trillions, of gigabytes of data obtained from various system processes and user information. It is a multidisciplinary field that tackles problems in complex statistics, computing, coding algorithms, and raw and refined data.

Data science as a subject has gained popularity among students and graduates alike. It has shown its importance in sectors like telecommunications, healthcare, aviation, and, to a greater extent, banking, and finance. With a specialisation in Data Science students develop abilities in languages such as SAS and R. Data science has enabled Fortune 500 companies to develop personal user interfaces and app recommendations, that have increased customer flow and acquisition and provided a pathway for intellectually challenging roles, better opportunities, and higher salaries for people. Higher salary packages were offered in Bangalore, Hyderabad, Pune, and Delhi, and a decent pay scale was observed in smaller cities.

Storing data is mostly done on the cloud, and this data is extracted with the assistance of data analytics; therefore, data science largely depends on cloud computing. Cloud computing is a way to connect servers and databases on the internet together. This interconnection is responsible for data management and storage. Another important sector utilised in data science is AI/ML, which helps scientists in effective analysis. In India, this subject is picking up momentum and is being offered as a specialisation at many institutes and universities, such as the IITs and IIMs. Various sectors in India have started utilising data science. For example, financial institutions are identifying fraud and improving risk management, and hospitals are providing personalised prescriptions and treatments.

In the contemporary era, every aspect of our lives is data-driven, and the demand for data scientists is increasing. Considering it as a career option would be great in the long run, considering the requirement for data engineers in third world countries and developed countries. The tiniest of businesses and corporations are willing to use data science in every financial and business decision.





Why Wireless Communication Matters for E&TC Students

Dr. Mangal Singh
Associate Professor
Department of Electronics and Telecommunication Engineering

We as faculty of E&TC at SIT understand that this field is ever changing. One area that has grown rapidly is wireless communication. For our students, the foundation in this field is no longer something they can do without but rather a must. Wireless communication is what holds the thread of information exchange from smart phones and Wi-Fi to Bluetooth and satellite communication, among others. It involves learning about its principles; radio frequency propagation, modulation techniques and antenna design which will make it easy for students to handle exciting challenges in future.

The internet of things (IOT) serves as a perfect case for illustration. This means that billions of devices will soon transmit data wirelessly hence the need for expertise in low power communication protocols and sensor networks. In addition, 5G advancement and other subsequent generations of cellular technologies call for engineers who can optimize networks for speed, capacity and reliability.

However, wireless communications are not limited to earthbound operations. A competition for space constellations such as Starlink satellites requires engineers having an understanding on how signals are transmitted over long distances.



Entering into wireless communication, E&TC students are offered limitless job options. One can choose to specialize in the field of cellular network design, create new solutions for IoT or even contribute to the advancement of satellite technology. The opportunities are simply infinite.

Therefore, leading through our upcoming engineers, we must give them the tools they need to move effortlessly through the changing world of wireless communications. This is a future full of possibilities and our students are ready to be leaders here.



Flash Electronics (3rd Year)

A leading player in the automotive electronics space, renowned for innovation, cutting-edge technology, and a commitment to excellence.

They gained insights into the latest trends and advancements in automotive electronics.



Raptech Engineering (2nd Year)





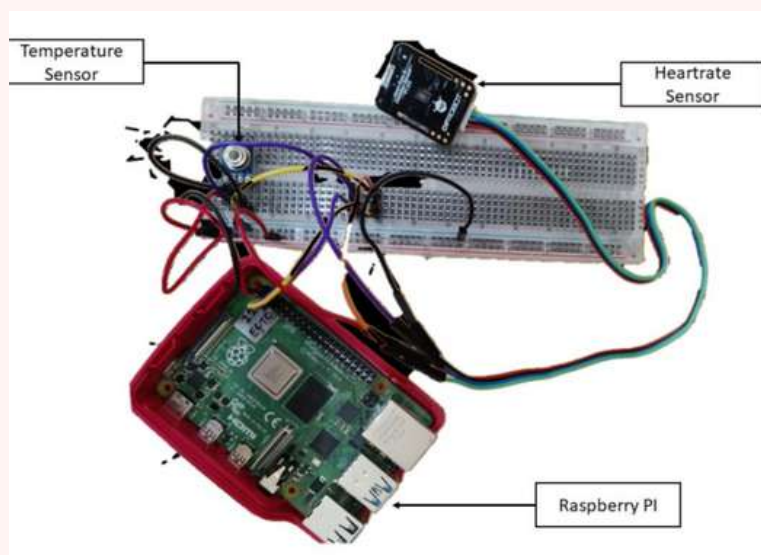
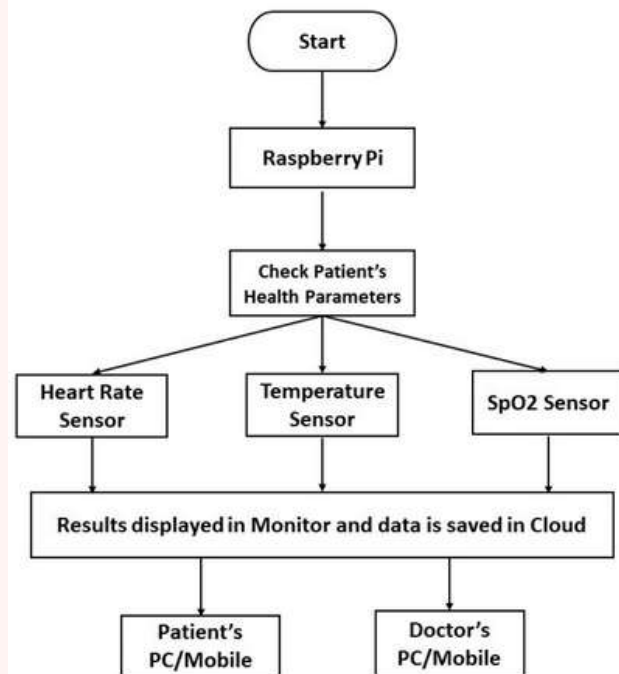
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This project invokes the development of a system that can monitor vital health indicators such as temperature, heart rate, and oxygen saturation and this is done by using Raspberry Pi. The system gathers real time health information and makes it possible for medical staff to remotely monitor patients in real time. The use of computer power in the project is the main highlight as it processes the patient's vitals efficiently in real time. Better patient care is always ensured with the help from computers in decision-making, which is based on the data gathered.

The distinct feature of the project is the use of a servo motor to automate the provision of oxygen to the patient. The servo motor automatically gives a patient the required dosage of additional oxygen when the device senses that their oxygen level is too low. This feature demonstrates a strong dedication to improve the well-being of the patient through simple yet effective techniques.

In conclusion, using a servo motor, computers, and Raspberry Pi for health monitoring is a significant advancement in medical technology. By integrating real-time data processing, remote monitoring, and prompt replies, this study illustrates a novel approach to patient care. Healthcare monitoring systems are modified by the project to be more proactive in managing critical health crises by adding the servo motor for oxygen delivery. Enhancing patient outcomes and streamlining the healthcare system are among the possible advantages.







Department of Electronics and Tele-Communication
received the prestigious **NBA accreditation for B.Tech**
(E&TC) Program.

This accreditation is a good reflection of the huge efforts, hard work and dedication by the faculties, staff, students and all the stakeholders of the Department of Electronics and Tele-Communication SIT.

SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE

Proudly announces

Department of Electronics and
Telecommunication
is accredited by

NBA
NATIONAL BOARD
OF ACCREDITATION

For AY 2024-25, 2025-26 and 2026-27, till 30
June 2027



Our faculty member **Dr. Paresh S. Nasikkar** was invited to deliver a talk "Importance of RE and EV in decarbonization" at 21st Pune Auto Expo EV Nation First...at the Creativity, Pune.

Dr. Nasikkar's insightful session undoubtedly added a valuable perspective to the event, shedding light on the crucial role of renewable energy (RE) and electric vehicles (EV) in our journey towards decarbonization.

The faculties and the department are marching ahead with the guidance and support from Dr. Pritesh Shah and Dr. Ketan Kotecha.



Dr. Sumit Kumar and **Dr. Amruta Dixit** have been granted a patent "A Miniaturized Antipodal Vivaldi Antenna Array for 5G Applications" for the groundbreaking innovation! The grant of this patent is a testament to their commitment to pushing the boundaries of knowledge and making a real difference in the world.



**Atharva Sasane, Rithu S, Srujan B, Prithvi Majety,
Smriti Singh and Sambhav Bhansali**

Team, "Aviatrons," for being among the top five teams nation wide at the **Smart India Hackathon** Grand Finale! **Smart India Hackathon** Grand Finale has been a testament to our team's dedication, creativity, and problem-solving skills.

Team Aviatrons designed a state-of-the-art Drone-based surveillance system for vessels navigating through port areas, with a specific focus on the Cochin port and developed a Drone on Drone Tech equipped with a custom Transponder system useful to monitor and track ships in real-time. Special thanks to the Ministry of Ports, Shipping and Waterways problem statement.



**Nitya Sharma, Nithish Ragavendara H, Rachit Sachdeva,
and Rohan Saraswat**

Second-year ENTC students, who participated in an advanced track six-month-long **National Entrepreneurship Challenge (NEC)** conducted by **E-Cell of IIT Bombay**. Against stiff competition from across the nation, these talented individuals showcased their entrepreneurial prowess and secured an impressive **12th position overall**.

Not only did they excel in the challenge, but they also had the incredible opportunity to witness Asia's biggest Entrepreneur Summit, gaining valuable insights, networking with industry leaders, and expanding their horizons in the world of entrepreneurship. Their achievement is a testament to their passion, hard work, and commitment to excellence.







Congratulations to **Abhishek Kumar Singh** and **Steve Francis** for securing the prestigious **AICTE Mitacs Global link Internship in Canada.**

The Department of Electronics and Telecommunication SIT is proud of its third year students..







IEEE Education Society SYMPOSIUM 2024

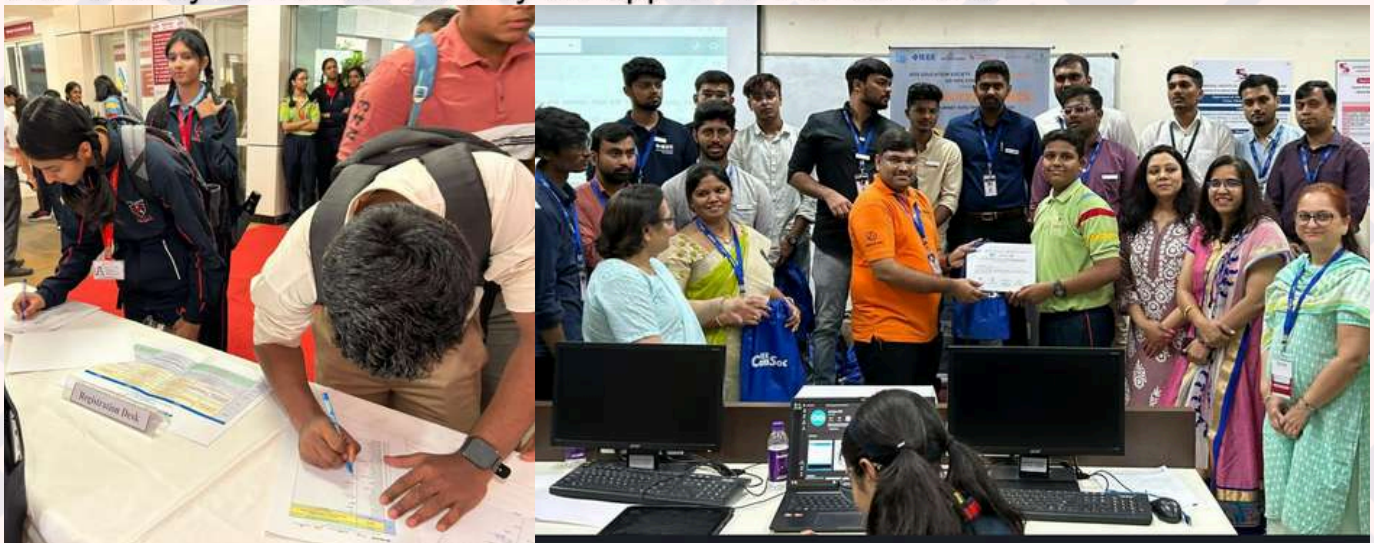
Symposium 2024 organized by the IEEE Education Society (EdSoc), under the esteemed guidance of Dr. MVV Prasad Kantipudi Sir and Dr. Mousumi Bhanja and Dr. Saffrine Kingsly. It was truly a gathering of minds and a celebration of innovation!

A variety of activities took place during the symposium, ranging from intellectual exchanges to practical sessions. One particular standout was "ConnectXperience: The World of IoT," an event that allowed us to plunge into the enthralling world of Internet of Things where we looked at its practical applications and future potential, it was truly eye-opening.

The participation of students from Dhruv Global School in the IEEE Fold Workshop further added dynamism to the already vibrant atmosphere!

Day 1 was loaded with informative programs: workshop for AWS Cloud and DevOps were carried out by the skillful Yeshwanth L M. His wealth of knowledge coupled with his captivating teaching techniques made the sessions on these state-of-the-art technologies thoroughly enjoyable!

But wait, there's more to come: we also went through workshops for Blockchain and Cloud Computing. They gave us an insight into these revolutionary technologies in their entirety as well as how they are applied in the real world.

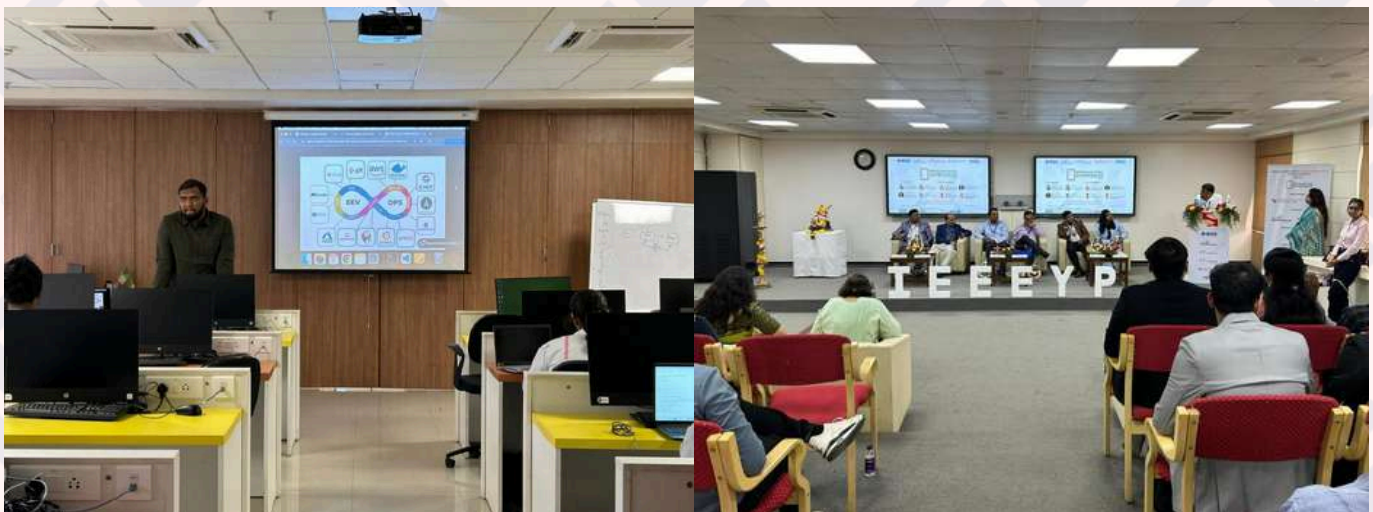


Day 2 Highlights from the 2024 IEEE Education Society Symposium!

The second day was presented to us as we go further into the world of innovation and technology at the IEEE Education Society Symposium with a number of workshops plus sessions that will definitely add value to your life. In this article, we provide an overview of the highlights today including prominent speakers:

- **Workshop on AWS Cloud/DevOps** - Yeshwanth L M sir's expert guidance empowered attendees to explore the vast landscape of AWS Cloud and DevOps methodologies.
- The first workshop was about **Frontend with Angular**, in which Yashwant sir, among other speakers gave valuable information for the development of the front end with Angular. The participants acquired knowledge on practical levels and techniques in creating dynamic user interfaces that are also friendly.
- Another workshop was based on **Streamlined Automation with Python** where Anjaneyulu Devarasetty sir presented his skills together with other specialists on how Python can be used for automation of web as well as desktop applications.
- **Workshop on Blockchain & Cloud Computing** - M Sai Prashanth sir and other industry leaders delved into the intersection of blockchain technology and cloud computing.

The day finally came to an end with the grand opening of the 2024 IEEE Education Society Symposium at the Seminar Hall which was the beginning of a combined search for innovation and quality in education and technology system.



Day 3 Highlights at the IEEE Education Society SYMPOSIUM!

The morning was off to a spectacular start with the **Radon Riders** Superbike Workshop & Road Showcase, that was sure to get your heart racing. The event later in the day just before noon served as the catalysis for an action packed afternoon. The enthusiasm which filled SIT Building was beyond words when fans joined to enjoy this amazing event, right in front of SIT, Pune.

On the Rajani Manchineella Ma'am's Dedication: What she displayed during the Foldscope Workshop was dedication that never wavered. I really felt her passion and diligence at work was a clear proof of why one should never give up till they get what they want. under her guidance.

After a quick, exciting beginning we came to the innovation at its core with the 2024 IEEE Education Society **Hackathon & Networking Sessions**. The joint work of brilliant minds who come together to collaborate and to ideate for solutions of real-world problems was indeed amazing and admirable.

Later in the day, the suspense came to an end as the **IEEE Execom** Positions were finally revealed! Congratulations to all the talented individuals who have been elected to lead and serve the IEEE community.





Engaging in Alumni sessions can prove valuable to discover previously undiscovered, innovative, and novel career opportunities. Interacting with alumni can help students explore uncharted paths and find a passion that they can follow! Esteemed alumni have conducted guest lectures and seminars to motivate students in diverse fields such as robotics, entrepreneurship ventures, Six Sigma and career opportunities abroad.

Engaging in Alumni sessions can prove valuable to discover previously undiscovered, innovative, and novel career opportunities. Interacting with alumni can help students explore uncharted paths and find a passion that they can follow! Esteemed alumni have conducted guest lectures and seminars to motivate students in diverse fields such as robotics, entrepreneurship ventures, Six Sigma and career opportunities abroad.

Also I would like to share with you how my 1st semester went and we all know the pandemic wasn't completely gone until the end of 2021 and the beginning of 2022 so due to the covid situation SIT has provided us an online studying platform where we were able to attend all the lectures virtually and the institute made sure that we were provided with all the facilities what a student is supposed to receive through the physical mode of education. So i am so thankful for the efforts that the Institute has made to reach and to provide us with the surplus amount of knowledge and learnings through the online mode. Since I was able to connect with anyone like my classmates and my professors very easily while sitting at home. It was very convenient and I felt very safe during the pandemic.

How the online mode of education works? So every single day we would connect with our professors through the virtual mode that is through the Microsoft teams. This platform offers an online collaboration space in which professors and students can share notes, chats, meetings, assignments. We were able to upload and Submit our assignments on time without having to visit the college.

Professors are able to create groups that can be an entire class or a subgroup within a class. Within these groups it's possible to share resources, work on projects together, and set.

My overall experience to date has been amazing, and the college is having an amazing infrastructure. The college provided me with a number of opportunities to grow and explore my skills. The emphasis on sports along with education always helped me a lot. The professors are highly supportive and I have always found a positive and healthy environment. We can approach and clear all our doubts even after the classes get over.

So currently now I am finally in the campus and pursuing my 2nd semesters through the physical mode. My overall experience to date has been amazing, and the college is having an amazing infrastructure. The college provided me with a number of opportunities to grow and explore my skills. The emphasis on sports along with education always helped me a lot. The professors are highly supportive and I have always found a positive and healthy environment. We can approach and clear all our doubts even after the classes get over.

I am highly thankful to Symbiosis Institute of Technology for providing me with an opportunity to be a part of it. It has added a number of values to my life.

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Our alumna, Ms. Ayesha Khan Khan (2009-13 batch of E&TC), shared her expertise with students of Department of Electronics and Tele-Communication SIT at Symbiosis Institute Of Technology Pune in an engaging online lecture today! Ayesha works as a Product Definition Lead at NVIDIA, California, US.

SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE

Department of Electronics and Telecommunication Engineering

Presents
Alumni Lecture Series

Transforming the Future: Exploring Opportunities in VLSI and Semiconductor Industry

Ms. Ayesha Khan
Product Definition Lead at NVIDIA
California, US

22nd March, 2024 9:30 AM

Join the Meet - <https://meet.google.com/bet-sdiw-ywq>

With her expertise in VLSI technology, she inspired and empowered the next generation of engineers. Her insights into "Transforming the Future: Exploring Opportunities in VLSI and Semiconductor Industry." provided invaluable knowledge to our students. She covered various aspects and explained domains where opportunities are rising and the skill sets required.

SEMICONDUCTOR INDUSTRY-GROWTH TRENDS

Applications such as consumer electronics, automotive, electric vehicles, industrial equipment, networking and communications, development of smart-cities, and data processing is the main factor that boosts the growth of the global semiconductor market.

The work-from-home trend – This has significantly increased the demand for PCs and laptops which then results in semiconductor demand.

Source: <https://www.procederresearch.com/semiconductor-market>

9:40 AM | Alumni Lecture Series

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Head, Department of Electronics and Telecommunication

Senior Member, IEEE



Associate Editor



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Team Lead, Chief Editor

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Associate Editor



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Assistant Professor (Sr. Grade)

Faculty In-Charge



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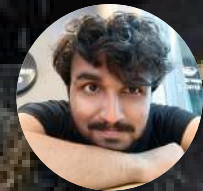
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Photography Head

Department of Electronics & Telecommunication

