



Vidyavardhini's College of Engineering & Technology

Department of Electronics & Telecommunication Engineering

12th EDITION | APRIL 2022



INDUSTRY 4.0

**ETA
PULSE**



ETA TEAM



SECRETARY

DESIGNING TEAM



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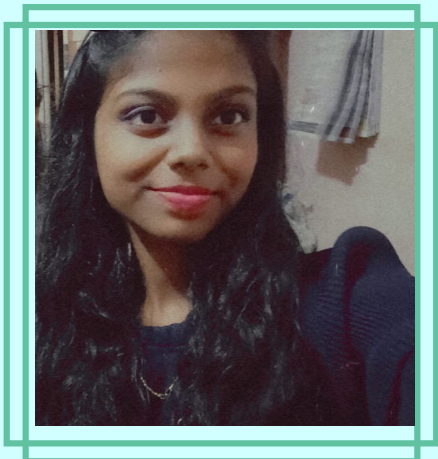


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FROM THE HOD'S DESK



Over the years, the ETA committee has journeyed a long way to fulfilling its core mission. It works not only towards the technical skill development of the students but also towards developing their soft skills by teaching students the importance of teamwork along with all the skills required to design and develop a magazine from scratch.

It is quite gratifying to see that ETA has come up with its 12th edition of Pulse Magazine. This year, **PULSE** explores the up-and-coming and ever-improving field of **Industry 4.0**. The magazine also features additional insights in the form of **alumni interviews**, **departmental activities**, and much more.

Though it has been such a tough year due to the global crisis, we put forward our best efforts to shine bright with excellent exam results as well as placement in various reputed companies like **Infosys, TCS, Zensoft, Zensar, Wipro, LTI**, and many more. Apart from this, **IEEE & IETE Students' Chapter** organized various seminars and workshops for students and teachers to acquire knowledge beyond their realm of the academic syllabus.

All this wouldn't have been possible without the spirit of co-operation and understanding between the staff and the students. I would like to appreciate the efforts of Mrs. Ashwini Katkar, the Staff Incharge of ETA for doing such a great job. I convey my warm regards to the entire ETA team for their relentless efforts and extend my best wishes for their future endeavors.

- Dr. Vikas Gupta



“

FROM THE STAFF INCHARGE



“ Education is not the learning of facts, but the training of mind to think! ”

-Albert Einstein

It is with great pleasure and pride to present to you the magazine, ‘Pulse’22’!

ETA (Electronics and Telecommunication engineer’s Association) a literature committee of the department, provides a platform for the students to stay updated with present and future technology. It also provides good opportunities for students in bringing out their talents related to writing and editing while promoting the habit of research. Continuing the trend this year too ETA published informative, & content reached newsletters on topics “**Nano-Electronics**” and “**FinTech**”.

Magazine Pulse’22 has the theme Industry 4.0 that has been highlighted through topics such as business models, trends and pillars of Industry 4.0, career opportunities, and many more. The magazine also includes departmental events, a Motivational section- Alumni Talk, and Student Achievements.

I am delighted to witness the progress of students in co-curricular and extracurricular activities, and I’m sure the excellent team-building skills that they learn whilst working here are going to help them further down the line. I devote my sincere gratitude to our Principal **Dr. Harish Vankudre** for his valuable support and to our HOD, EXTC, and Dean Academics **Dr. Vikas Gupta** for his immense guidance and support. I would like to appreciate the work done by our Secretary, **Mr. Kushal Raut**, and his entire team. I would like to appreciate the whole ‘ETA team’ for their valuable efforts.

Happy Reading !!!

- Ms. Ashwini Katkar

”

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FROM THE SECRETARY'S DESK

“ Ignoring technological change in a financial system based upon technology is like a mouse starving to death because someone moved their cheese ”

-Chris Skinner



Great achievements are the result of slow incremental developments, something that we have learned over a span of several years. We often consider such tiny incremental developments as trivial, but widening your horizons not only opens up your opportunities but they end up giving you a new perspective on things. That's why taking that leap to try something new is essential. This was the mindset that I had when I decided to become a member of ETA and looking back, I'm glad I made that decision.

This year we decided to modernize the design of the magazine. It also introduced us to fields like digital printing and the use of professional tools, which the members could further delve into and maybe even pursue as a career. Following and implementing this vision, the ETA committee has always taken great efforts to expand the horizons of knowledge and education. It has provided the students with an opportunity to gain knowledge beyond their academic boundaries. It has enabled the students to not only be technologically updated but also has helped them grow as effective professionals.

The one thing that I wanted to achieve during my time as the secretary was to make sure the team develops a skill or two, something they didn't possess before joining, and I think I have planted it in them. I hope the next person to lead the team follows this tradition of bringing something new to the table and focuses on the overall development of the team along with the periodical literature.

I would like to offer my sincere gratitude to our respected HOD, and our Staff-Incharge for their valuable support and guidance. I would also like to thank my team, without them this magazine wouldn't have been possible.

- Kushal Raut

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Image Courtesy- ftx.infotech.com

INDUSTRY 4.0

Changing the World with Technology

-Riddhesh Vanjara, Karan Singh (TE)

The Fourth Industrial Revolution also known as Industry 4.0, conceptualizes rapid change to technology, industries, and societal patterns and processes in the 21st century due to increasing interconnectivity and smart automation. Coined popularly by the World Economic Forum Founder and Executive Chairman, Klaus Schwab, it asserts that the changes seen are quite just improvements to efficiency, but express a significant shift in industrial capitalism. Blurring the lines between the physical, digital, and biological worlds.

This is being driven by advances in digital technology, machine-to-machine communication and also the internet of things (IoT) This integration results in increasing automation, improved communication and self-monitoring, and more intelligent machines.

Ref- <https://www.forbes.com/sites/bernardmarr/2018/09/02/what-is-industry-4-0-heres-a-super-easy-explanation-for-anyone/>

It also signifies a transition from the digital age of the late 1990s and early 2000s to an era of embedded connectedness marked by widespread technology use across society, which alters how we perceive and understand the world around us.

Technology is changing at a rapid rate and also the ability to future-proof system is becoming increasingly challenging. The 4-IR will have a significant impact on people's living standards around the world, including the ability to raise global income levels. It alludes to our current moment of rapid technology advancement, which is altering the way we live. By utilizing a wide range of modern technologies. Most employees said that 4-IR contributes to a better work experience by saving time, allowing them to work from anywhere, and increasing their abilities. Machine learning and artificial intelligence are two examples of how 4-IR is changing the way businesses operate.



HOW INDUSTRY 4.0 IS CHANGING THE WORLD!

-Kushal Raut, Varad Vartak (TE)

The Industrial world is facing rapidly changing challenges. Because our resources are limited, we must all accomplish more with less. To face these challenges on the route to Industry 4.0, digitalization and automation are game-changers. The huge amount of data generated by the Industrial Internet of Things (IIoT) must be collected, understood, and used. The Digital Enterprise is doing exactly this by combining the real and the digital worlds. As a result, the unlimited amount of data helps us to make more efficient use of our scarce resources, making the industry more sustainable.

Industry 4.0 is a brand-new wave that will completely transform the way businesses are conducted in the coming decades. Between 1760 and 1840, the first industrial revolution (Industry 1.0) occurred. During this time, there was a shift from hand production to machine production, which was primarily driven by steam and water.

Many other businesses were affected by this upheaval.

The term "Industry 2.0" refers to the years 1870 to 1914. The technology revolution is usually referred to as Industry 2.0. During this time, technological advancements allowed for significant improvements in communication and transportation.

During this time, large train networks were built, and communication was greatly accelerated thanks to the invention of the telegram. During this time, electricity entered the picture, leading to the electrification of factories and the development of new production lines.

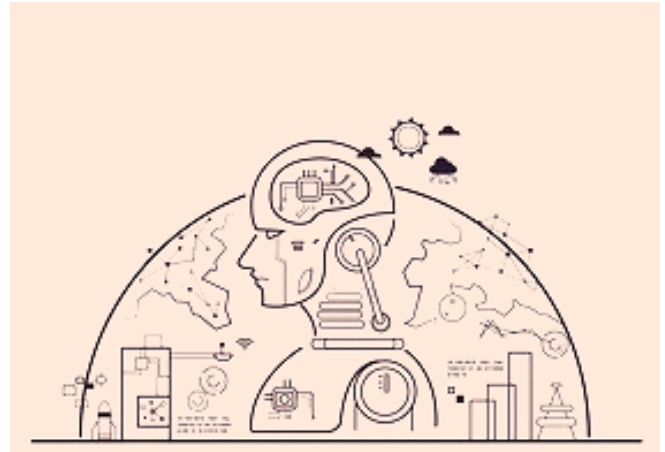


Image Courtesy- shutterstock.com

In the second half of the twentieth century, the third revolution happened. The digital revolution is the name given to this revolution. Computers became tremendously significant in practically every business and element of life at this time. Communication has also vastly enhanced as a result of tools like email and the internet. Industry 3.0 accelerated humanity's progress and made the world far more interconnected.

The digitalization of manufacturing and the computerization of industry will define the fourth industrial revolution. Smart factories will be the principal application of Industry 4.0. Industry 4.0, on the other hand, might lead to smart ports with automated cranes capable of loading cargo onto ships without the need for human intervention.

Important components that will revolutionize the industry are listed below. Smart and autonomous systems, for example, will make manufacturing and shipping more seamless and efficient than ever before, thanks to big data and machine learning.



- Big Data Analytics –BDA are analytics that can analyze and extract serviceable information from immensely colossal data. Big data analytics is getting better all the time, and it will play an essential role in Industry 4.0.
- 3D technology- Applications of 3D technologies include 3D modeling, 3D printing, 3D visualization, 3D display, and so on. 3D technology is an emerging sector that is being embraced by business nowadays to improve the shopping experience as well as to simplify the working process.
- Smart factory- Factories that rely on advanced technologies like robotics, big data processing, cloud computing, strong cybersecurity and smart sensors to be highly efficient, secure and cost-effective.
- Internet of Things (IoT) platforms - The Internet of Things refers to all devices that can collect data, transmits it over the internet, and communicates with other devices. IoT devices include smart refrigerators, lighting, and toasters, to name a few.
- Location detection technologies – This technology detects your location and is commonly found on mobile devices. Using location detection technology, you can share your whereabouts with trusted persons.
- Advanced Algorithms: Advanced algorithms are highly complicated mathematical formulas that provide instructions for computer systems to follow to make sure that various tasks are completed.
- Data Visualization – When data is visualized, it takes the form of infographics, charts, maps, and other visual representations.
- Authentication and Fraud Detection – This technology uses big data and pattern recognition to alert parties when fraud is taking place. In the future, banks and financial organizations will rely increasingly heavily on this technology.
- Blockchain Technology – Blockchain technology is a derivative of Bitcoin, the well-known digital currency. Information is maintained on universal public ledgers in the form of "blocks" that are connected in a "chain" and validated by "miners" with this technology.
- Multi-level Customer Interaction and Customer Profiling – Customers are divided into groups using this technology based on unique identifiers. Hobbies, age, geography, and interests are examples of identifiers.
- Cloud Computing – Cloud computing is computing that is not reliant on local servers, desktops, or laptops. Cloud computing, on the other hand, is based on "the cloud," which is shared storage that is located in a remote location.
- Advanced Human-Machine Interfaces - Advanced human-machine interfaces are machine interfaces that provide visual data about the functions the machine is executing in real time.

INDUSTRY



Image Courtesy- Azom.com

Ref- <https://hapticmedia.com/blog/industry-4.0/#:~:text=sell%20products%20online,-,The%20Impacts%3A%20high%20levels%20of%20automation%2C%20customizatio>



5 TRENDS OF INDUSTRY 4.0

-Nilesh Jangid (SE)

1. AI projects becoming economically successful.

While artificial intelligence (AI) has so far found its way into our lives, through smartphones, intelligent fitness trackers, smart assistants, etc. the manufacturing industry has just started to consider AI integration. The manufacturing line of the future, though, will depend heavily on AI for health-monitoring and predictive-maintenance services, visual inspection systems, and optimization of manufacturing processes.

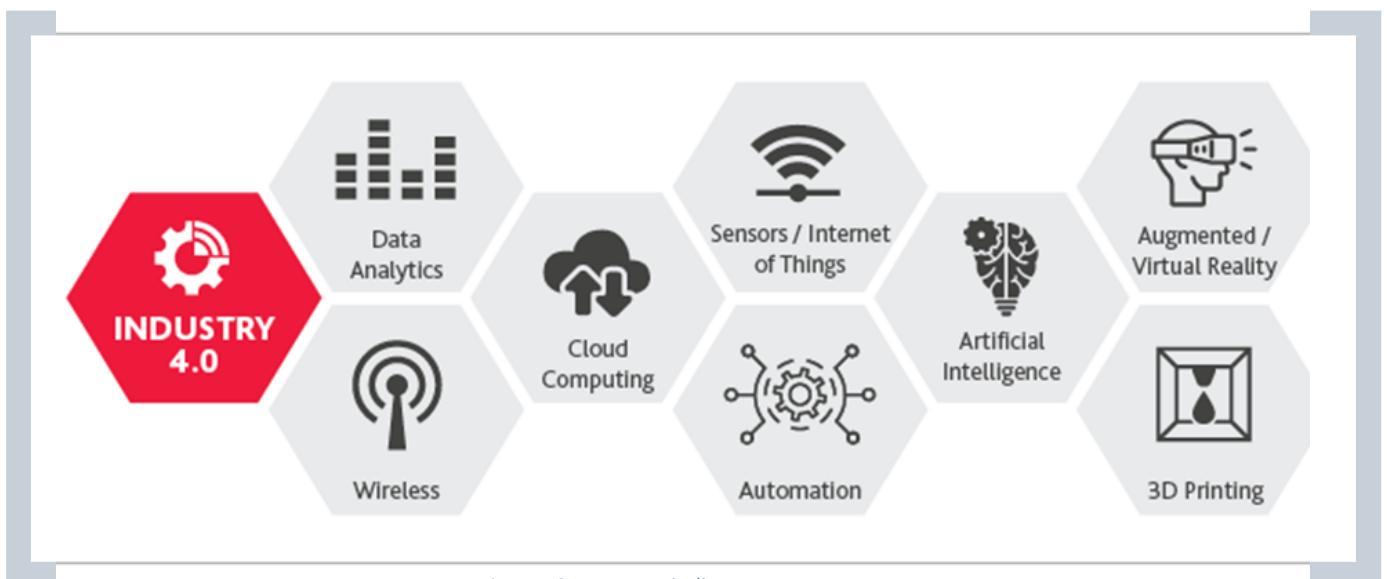
AI techniques will lead the way toward the sight of a fully automated factory that flexibly manufactures goods in small batches—all the way to “sample size one” production. In 2022 and beyond, we will see more and more AI-enabled applications that are not only technologically fascinating, but also economically pertinent. And eventually, AI will allow for pliable and powerful machine software that would not have been practicable with standard ways of programming.

2. Machine functionality being validated in the digital world.

The growing complexity of machine software as well as the occurring modularization of contemporary production equipment has led to more simulation upfront. The fact that global travel for commissioning or service has remarkably reduced or in some cases stopped these days strengthen this trend.

Functional tests of production equipment of the future will be presented using comprehensive models for simulation and virtual commissioning. The factory of the future will be built twice—first virtually, then physically.

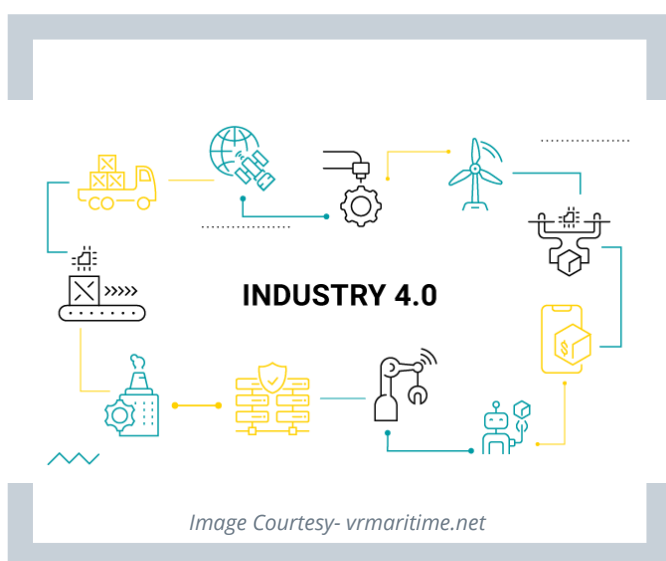
Digital portrayal of production machines continuously fed with live data from the field will be used for health monitoring throughout the complete lifetime of the equipment and will build onsite missions.





3. Further fusion of shop floor and office floor.

With modified machines being interrelated through standardized protocols like OPC, UA, TSN and fixed cable connections being replaced with wireless protocols like 5G. We will also see a modification on the office floor. Programs running on industrial controllers, edge devices, and cloud systems will work even more securely with apps and dashboards, and eventually lead to a fusion of the shop floor and the office floor. Progressive powerful hardware systems will not only enable complex AI algorithms running on the production equipment, but also induce a new extent of human-machine interaction through automated processing of text data and through natural language processing, broadly established in the consumer industry with smart voice assistants.

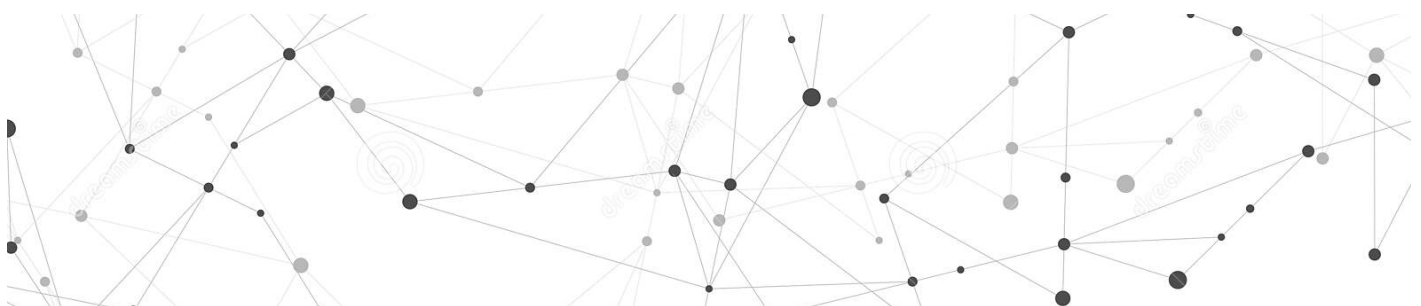


4. Robots and autonomous systems automating production and material handling.

Pliable production in the factory of the future will require robots and autonomous handling systems to adapt faster to changing requirements. While classic programming and teaching of robots isn't suitable for preparing the system to handle the vast and rapid-growing number of different goods, future handling equipment will automatically learn through reinforcement learning and other AI techniques. The precondition massive calculation power and huge amounts of data have been established over the past years.

5. More opportunities for engineers with domain & skills.

While 2020 has shown us how important digitalization is for the manufacturing industry, the coming years will disclose who is ready for the factory of the future and who is not. Enterprises that strongly accept the challenges and chances of a more digital and virtual world will do so with groups of engineers with "domain" skills, i.e., those who are can combine domain knowledge with expertise in technology and tools from companies like MathWorks. Thus, companies structuring and operating industrial equipment need to change their job postings and hire engineers with a entire different profile to be ready for a future in which Industry 4.0 is just the dawn.



Ref- <https://www.electronicdesign.com/industrial-automation/article/21154006/mathworks-5-trends-for-industry-40-the-factory-of-the-future-2021-and-beyond>



BUSINESS MODELS OF INDUSTRY 4.0

-Prachi Purohit, Sanskruti Talgaonkar (TE)



Image Courtesy- industrywired.com

Evolution of the concept Industry 4.0, dictated by the need to reverse the falling trend in industrial production of European enterprises, forces contemporary enterprises to adapt quickly and flexibly. These adaptations affect demand conditions, production costs, and the search for new business solutions.

The vital development of industrial digitization and telecommunications technologies allows for better integration of processes, machines, employees and individual products within the framework of intelligent network structures. Industry 4.0 provides data collection and analysis, assessment of productivity and consistent improvement of processes.

The development of the Industry 4.0 concept was needed to develop new competitive business models. These business models need to be based on teamwork and better use of the accessible resources. As a result, companies could achieve a

competitive advantage through the personalization of products and low production costs. This fourth industrial rebellion influence the operational activity of enterprises and results in new tactical thinking.

The basis of new business models modified value chains within the network of cooperating enterprises. Supply chains provided with the latest cyber-physical solutions ensure fast restructuring of logistics processes and a very pliable adaptation of commercialization. These new configuration of supply chains offer the most personalized consumer expectations.

With the evolution of the Industry 4.0 concept, questions arise: what new forms will business models adopt? What will the cooperation of enterprises that are congenitally competitors be? What tools will be able to support network cooperation of companies? The target of this study is to recognize the challenges related to the



adaptation of business models. A set of features, issues and requirements have been identified and three different approaches has been suggested to make firms getting closer to the industry 4.0 phenomenon such as service orientation, networked ecosystems and customer orientation

In the future business reality, what was previously a domain of many market participants will be offered within one application by one player. Trends will be shaped by customer expectations and experiences, creating the potential to transform almost any sector within the business-to-business (B2B) and business-to-customer (B2C) areas. As a result, companies will have to define their strategies and business models in a completely different way over the next few years not concerning traditional market competitors but the emerging consumer ecosystems. These models become the foundation of a competitive market advantage determined by the rules of the Industry 4.0 concept. It is essentially a trend towards automation and data sharing in manufacturing technologies and processes, including cyber-physical systems (CPSs), the Internet of Things (IoT), cloud computing, cognitive computing and artificial intelligence.

The main advantages of Industry 4.0 are as follows :

- 1 Increased economic efficiency
- 2 Increased work efficiency
- 3 Increased flexibility
- 4 Reduction in production costs
- 5 Increased return on investment
- 6 Enhances productivity
- 7 Creates innovation opportunities

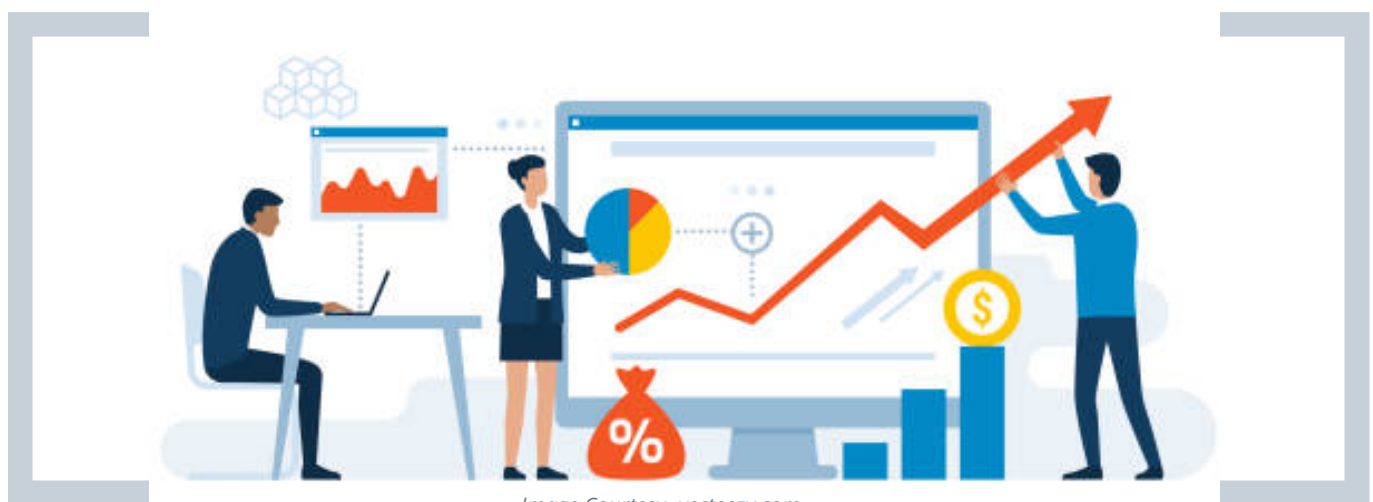


Image Courtesy- vecteezy.com

Ref- https://www.google.com/search?q=Adapting+the+business+models+for+industry+4.0&rlz=1C1CHBF_enIN885IN885&oq=Adapting+the+business+models+for



LEADING COMPANIES IN INDUSTRY 4.0

-Riddhi Garudkar (SE)



Image Courtesy- vectorstock.com

Industry 4.0, is understood because the Fourth technological revolution. It's caused fundamental shifts in industrial practices of traditional methods, thereby transforming the manufacturing sector. Integration of probably disruptive technologies like the economic internet of things (IIoT), AI, big data analytics, and robotics is enabling industries to boost factory efficiency, augment product quality and sustainability, enhance workers' safety, and boost the economic growth.

Embedded software, advanced sensors, and collaborative robots have arrived within the era of smart manufacturing; factories and warehouses are leveraging industry 4.0 solutions to digitize and automate industrial operations, minimize equipment downtime, and make factories more flexible, efficient, and productive. The IoT technology allows machines to attach with various other web-enabled devices, making collection, analysis, and exchange of huge amounts of knowledge in real time possible.

Furthermore, AI followed by machine learning and edge computing help automate and streamline factory operations, while increasing machines mea-

sure of system reliability, reducing latency time and modifying security. a number of the key applications of industry 4.0 solutions include factory automation, supply chain optimization, product lifecycle management, and additive manufacturing and 3D printing.

Top 5 Companies within the World Leading the Fourth technological revolution

1. Intel Corporation
2. General Electric company
3. IBM Corporation
4. Siemens AG
5. Cisco Systems Inc.

Intel Corporation:

Intel Corporation is a world-renowned technology company offering PC, data center, Internet of Things (IoT), and cloud computing solutions. Intel corporation is that the world's largest manufacturer of personal computers (PCs), semiconductor chips, and microprocessors. Intel's industry 4.0 technologies and solutions are empowered by Industrial Internet of Things (IIoT) and edge computing, and these solutions enable



manufacturers to extend operational efficiency, lower costs, analyse data faster, automate manufacturing processes, and increase uptime . The hardware portfolio comprises IoT, edge, AI, and cloud infrastructures and solutions that outline new levels of productivity and maximize revenue.

General Electric Company:

It is a globally leading offering cutting-edge technology and solutions for the manufacturing, healthcare, electronics, aviation, energy & power, automotive, and financial services industries. GE's exclusive portfolio of connected digital solutions are increasingly being deployed in various industries for factory automation, increased operational agility, and improved productivity and profitability in manufacturing. Additionally , these solutions aid in data collection, enterprise integration architecture, process quality management, and production equipment integration.

IBM Corporation:

Leading American technology conglomerate, International Business Machines has an abbreviation as IBM Corporation , focuses on the assembly of hardware and software products, and offers an enormous array of hosting and consulting services. The corporate operates in over 171 countries worldwide, and a few of the main inventions including the automated teller machine (ATM), magnetic strip card, hard disc drive, UPC barcode, and therefore the SQL programming language . The revolutionary industry 4.0 solutions offered by IBM include enterprise asset management, asset performance management, infrastructure asset management, supply chain management, systems engineering, facilities management, B2B collaboration, and worker and workplace safety.

Siemens AG:

Siemens AG is that the largest industrial manufacturing company in Europe, with numerous branch offices worldwide. The German technology giant is recognized for its excellence in AI, IIoT and edge computing solutions for the manufacturing, healthcare, transportation & logistics, and energy & power industries. Siemens focuses on smart infrastructure as an example smart factory solutions and smart buildings and grids, Internet of Things, cybersecurity and digital twins. The Siemens Digital Industries Software platform is predicated on a totally digitalized business model that permits 3D & 2D product lifecycle management and offers advanced robotics, cloud connectivity, and additive manufacturing solutions.

Cisco Systems Inc.

Cisco Systems Inc.is a multinational technology company. Along side advanced networking hardware & software and various high-tech solutions and services, the corporate excellence in IoT, edge computing, domain security, and energy management solutions for a good range of industries. At Cisco, the concept of industry 4.0 is concentrated on combining the physical world and therefore the digital world to realize newer insights into industrial processes. Cisco's industry 4.0 portfolio includes Big data, IoT, AI, augmented reality (AR), simulation/digital twin, cloud computing, cybersecurity, systems integration, autonomous systems, and additive manufacturing.



Image Courtesy- forbes.com

Ref- <https://www.emergenresearch.com/blog/top-10-leading-companies-offering-industry-4-0-solutions>



Carrier

Opportunities

-Shamini Iyer (BE)

Is India ready for Industrial Revolution 4.0 ?

We are moving into an era where mindset is more important than skills. This is not to say that skills are not important anymore. But the mindset will be our ability to adopt, collaborate and bridge cross-competencies in specialized areas like quantum science and artificial intelligence. AI has increased exponentially the computing power and vast amounts of data from software used to discover new drugs to algorithms used to predict our cultural interests. AI is considered as the next generation electricity. COVID-19 was a boost for industrial revolution in India.

It is predicted that 4th industrial revolution could be either pose the biggest opportunity and the largest threat to prosperous future. Since India is already facing a severe job crisis the revolution could be applied only in the following sectors:

- Telecommunications industry
- Healthcare
- E-Sector
- FMCG

Why should India adopt Industry 4.0 ?

As per McKinsey's analysis if we implement various key technologies from Industry 4.0 across various sectors like production, logistics, supply chain and procurement. there are chances of increment by 40% in operational cost.

The implementation of automation is reducing the manufacturing cycles in time required. The digitization of numerous manufacturing process really did too increase in manufacturing and decrease in capital investment also improvising experience for consumers. Data driven decision-making is the new decision maker in various fields.

How is India preparing for Industry 4.0 ?

India has taken various initiatives which welcome Industry 4.0. As per Indian brand equity foundation's analyzed; The Indian government plans to raise the share of the manufacturing sector to 25% from 16% of GDP by 2025. Also, the government is preparing the Indian market to face the global manufacturing market through Make in India initiative.

The main obstacle for India to adapt is the lack of skilled manpower or the panic of losing jobs through automation and relevant technologies in addition to the policy adoption. Quick solution is need to be found in order to make industrial revolution 4.0 successful in India





Evolution in Technology since 18th Century

Technological Journey

Technology is a very common term, and it has been upgrading itself every day. In the late 18th century, mechanization marked the first industrial revolution that occurred in industrial machines powered by water and steam. Electrification was identified as second revolution in the late 19th century, machine production in mass and assembly lines was power-driven by electricity.

Automation in 20th century was documented as the third revolution, wherein production was improved significantly with electronics and computers. Today we are into fourth revolution which started in the early 21st

century and it's said to be a Digitalization and Communication world, with extensive use of Connected Devices, Sensors, Cyber Physical Systems, Data Analytics, IoT, AI, Machine Learning, etc. Figure 1 depicts various stages of Industrial Revolutions which took place in the course of history.

FACTS

Digital Twinning is an idea to create a digital version of a real thing in the cloud of a product , process or service.



Figure 1. Industrial revolutions

Internet of Things

Internet of Things (IoT) is one of the prevalent technologies of Industry 4.0. IoT defines the system of devices (Things) instilled with sensors, controllers, and other technologies for communicating information with other devices and systems over the internet. It empowers a rich set of domestic and industrial applications like Smart Home, Smart Appliances, Smart City, Smart grid, Smart Automation, etc. as represented in Figure 2. New business models and opportunities for small and medium-scale industries would ensue due to the digitization of the industry. A new fact of Industry 4.0 leads to machine flexibility that adapts to

the requirements. This results in a highly supple, slender, and agile manufacturing process allowing a multitude of products to be formed under the same roof. Various enabling technologies boost Industry 4.0 with a diverse spectrum of necessities that confirm the running of various systems. These technologies include Wireless Sensor Networks, Embedded Systems, Big Data, Cloud Computing, 3D Printing, etc. India aims to influence Industry 4.0 concepts and novel hi-tech enterprises for manufacturing and overall setup as a part of the Digital India initiative. Industry 4.0 has enabled and provides numerous opportunities in various fields.

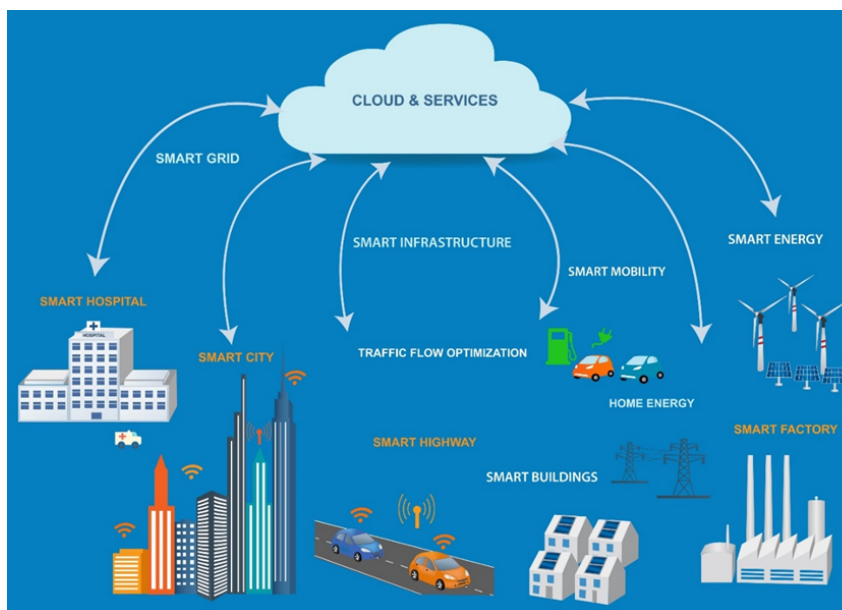


Figure 2. IoT Applications

https://www.delkin.com/wp-content/uploads/2017/07/dreamstime_xl_70236876.jpg

Digital Twinning

Digital Twin technology is one of the upcoming initiatives of Industry 4.0.

The manufacturing industry has advanced immensely due to the developments in Industry 4.0. A Digital twin resembles a digital replica of a physical object, system, or event in the real world. It represents a software model or a commodity that reflects a characteristic object, process, building, or human. The diverse ecosystem of the digital twin consists of sensors that are mounted on the machine periphery will sends real time data of the machine performance.

Analog to Digital converter devices convert the sensor data into a signal which can be understood by the processor. The signal from the processor is further sent to the cloud database server via the access point router. A machine model is made which will help to build a virtual environment identical to the real one. With the help of real-time sensor data, the simulation will be carried out. Digital-twin technology will prove to be beneficial for manufacturing and will help reduce maintenance problems while ensuring ideal production output. It is an emerging concept used in smart manufacturing that can comprehend the state of real-time manufacturing systems and foresee system failures.

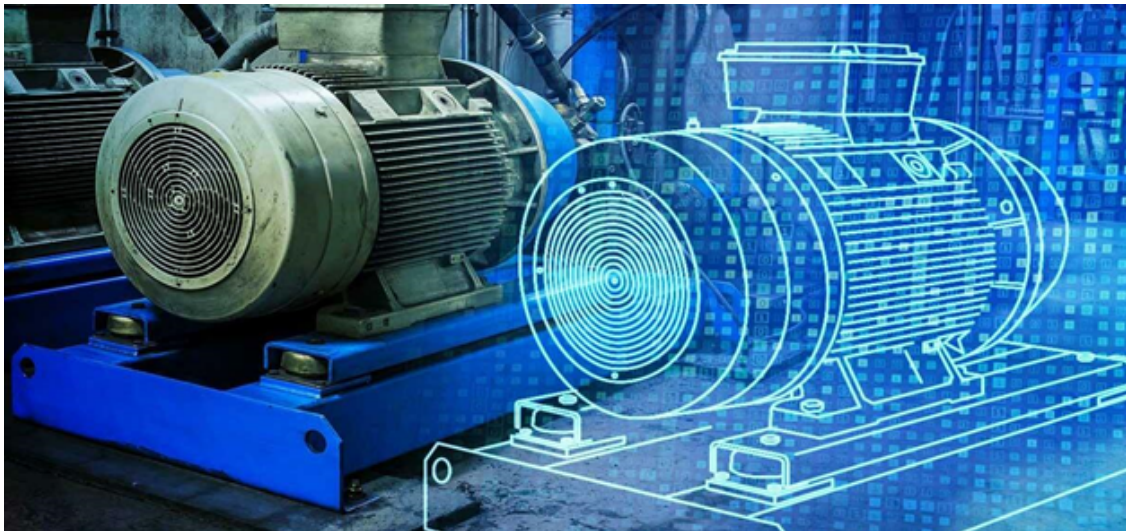


Figure 3. Digital Twin



An Article by:

Dr. Sunayana Jadhav

(Asst. Professor)

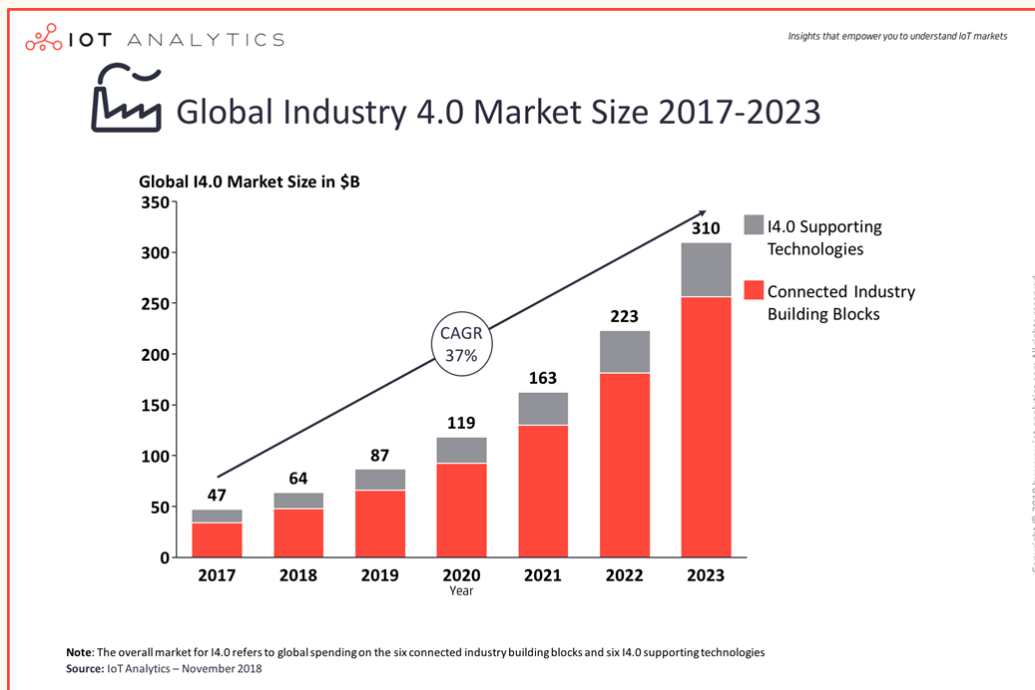
Electronics and Telecommunication Engineering

Vidyavardhini's College Of Engineering and Technology

Vasai (W)

BOTTLENECKS AND CHALLENGES FOR IMPLEMENTING INDUSTRY 4.0 IN INDIA

Author: Asim Kumar Sinha, CEO IIOTEXPERT



The World Economic Forum's Networked Readiness Index (NRI), also referred to as Technology Readiness, measures the propensity for countries to exploit the opportunities offered by information and communications technology (ICT). A holistic research by the World Economic Forum (WEF) is used to demarcate the adoption of Networked Readiness Model by various countries. The Networked Readiness Index (NRI) 2016 Global Ranking indicates the standing as: Singapore 1, Finland 2, Sweden 3, Norway 4, United States 5, Netherlands 6, Switzerland 7, United Kingdom 8, Luxembourg 9, Japan 10, Hong Kong SAR 12, South Korea 13, Canada 14, Germany

15, Malaysia 31, China 59, Thailand 62, Sri Lanka 63, India 91, Pakistan 110. We can see here India's position was really bad and was just ahead of Pakistan. Did IIoT in challenging times, but reforming the operating model with IIoT solutions is always helpful. Based on my past experience in Indian industries, listed below are some key challenges:

- 1. High cost of scaling**
- 2. Lack of resources/knowledge to scale**
- 3. Lack of data analytics skills in-house**
- 4. Jugaad attitude** from plant floor level to top management level many times is the biggest constraint.

5. Lack of courage among investors or management due to unclear ROI and value of the Project. It is because of low transparency from the supplier's side.

6. Lack of trust and fear of failure.

7. Lack of interest in innovation in team: Because people don't want to come out of we ever think why? Why are we so much behind in Industry 4.0 implementation? Actually, the time has come now to think about this failure, where we stand in competition to other developing countries.

8. Lack of coordination from management.

9. Less support from shop floor employees - Many times they think automation will take their jobs. Which is in fact not true. Automation is to help them in their job and help improve OEE.

10. Risks to data security because of incompetent IT department.

11. Unclear budget value presented by project head.

12. Lack of leadership support and attention.

13. Too many stakeholders and many having different concept.

14. Country's political situation & policies :

We need to understand, that we have entered a new era of Industry 4.0, in which computers & automation have come together in an altogether new way, with robotics connected remotely to computer systems equipped with machine learning algorithms.

Need of automation in Covid-19 Pandemic time:

Many questions have been asked in various forums related to the actual need of automation in our factories during this

Covid-19 pandemic. It has been seen, every few years, industrial work gets reshaped mainly due to technological forces or economic forces. But this time with the Covid-19 pandemic, work in every industry is reshaping and the new kinds of roles are growing with three trends, i.e., Remote work, Digitalisation, and Automation.

Applying IIoT to secure Business Continuity :

Faced with the Covid-19 crisis, industrial leaders have one business imperative: maintaining their operations. IIoT, implemented in a plug-and-play mode, can be instrumental in ensuring business continuity and minimising economic damage by ensuring employee safety and security, improving liquidity, and lowering short-term costs.

Cost Saving & Safety :

Companies are suddenly dealing with work from home on a large scale, as well as new concerns about protecting their remaining on-site employees, and have adapted their workforce organization as a consequence. IIoT tools can play an important role in ensuring a seamless transition through these changes in our manufacturing environment. As the crisis unfolds, industries can benefit from short-term cost reductions with the help of several IIoT-enabled tools as follows.

Remote Employee Collaboration:

In general, the more digitized a company's processes are, the simpler it is to collaborate remotely. Off-the-shelf IIoT tools support the continuation of operations with fewer employees on-site since they facilitate remote work in direct and indirect functions. Measure production levels, and improve performance gaps across shifts.

Digital Performance

Management:

IIoT based software solutions can provide a real-time dashboard of key performance indicators to support shop-floor performance dialogues, increasing transparency. The software evaluates machine data, like information on overall equipment effectiveness, part production, and quality from IIoT connectivity. Improved performance management helps companies boost labor productivity by about 20- 40 %

IIoT-enabled Asset

Optimisation :

This use case involves using advanced analytics to identify the root causes and countermeasures related to the three drivers of overall equipment effectiveness (OEE): availability, performance, and quality.

For Eg. an aerospace supplier had a low OEE when producing an important airplane component. It then used IIoT solutions to monitor and detect certain problems, such as tool wear & missing materials.

Supply-Chain Integration across the value chain :

IIoT facilitates real-time data exchange between all supply-chain participants, creating an integrated view of production programs, scheduling, inventories, quality, and anticipated delivery times. In addition to building transparency and trust, such tools can also reduce supply-chain costs and risks - for instance, by receiving signals from connected machines when they are running out of raw materials, or by tracking the flow of materials along the supply chain using geolocation tags.

Key

Recommendations:

As an automation expert, I strongly advise all industry stakeholders to use this pandemic time for implementing Industry 4.0 and other important changes in your plants and factories without any further delay so that you can help your business as well as your workers. Our project strategy at IIOTEXPERT is completely based on the World Economic Forum and Mckinsey concept of Lighthouse model factory.



Asim Kumar Sinha
CEO IIOT EXPERT

About the Author:

Dynamic and results-driven leader, with over 20 years of progressive senior management experience, with a focus on improving manufacturing productivity and digital transformation. He started his career working in Rockwell Automation and subsequently worked in several corporations of global presence, including one in the USA, i.e., Crown Cork and Seal Inc., for 5 years. After returning from the United States to India in 2006, he served in oil refineries like Reliance Industries, HPCL Mittal Industries, and FMCG companies like Patanjali Ayurved for the next few years. Currently, partnered with a leading Industrial IoT company across 45 countries, Vorne USA, he is busy helping factories double their productivity, reduce downtime, and rejection, and save money. He is helping them become a "smart factory" and management to analyze their production KPI etc

MEET THE DEPARTMENT

Teaching Staff

Dr. Vikas Gupta



Ph.D. (EXTC)
Area of interest:
VLSI, Signal Processing,
Digital Communication,
Satellite & Radar
Communication

Dr. Amrita Ruperee



Ph.D. (Wireless
Communication)
Area of interest:
Wireless Communication

Dr. Sunayana Jadhav



Ph.D. (Electronics)
Area of interest:
Wireless Networks

Ms. Shaista Khanam



M.E. (Electronics)
(Ph.D Pursuing)
Area of interest:
Microprocessor and
Microcontroller, VLSI

Ms. Shraddha Gosavi



M.E. (EXTC)
Area of interest:
Speech Recognition,
Optical Fiber
Communication

Ms. Sandhya Supalkar



M.E. (Electronics)
Area of interest:
Image Processing, VLSI

Ms. Ashwini Katkar



M.E. (EXTC)
(Ph.D Pursuing)
Area of interest:
Computer Networks,
Optical Communication

Ms. Neha Gharat



M.E. (EXTC)
(Ph.D Pursuing)
Area of interest:
Image Processing,
Microwave

MEET THE DEPARTMENT

Ms. Ekta Naik



M.E. (Digital Electronics)
(Ph.D Pursuing)
Area of interest:
Neural Networks

Ms. Trupti Shah



M.E. (Electronics)
Area of interest:
Image Processing

Mr. Sandeep Pawar



M.Tech. (EXTC)
Area of Interest:
Antenna Design

Ms. Sonal Dubal



M.E. (EXTC)
Area of interest: Antenna
Theory

Non - Teaching Staff



Mrs. Bhagyashree Rane
Lab Technician



Mrs. Diksha Save
Lab Technician



Mrs. Madhu Lade
Lab Technician



Mr. Prakash Bhojate
Peon



Mr. Sudhir Patil
Peon

DEPARTMENTAL ADVISORY BOARD (DAB)

- The Departmental Advisory Board (DAB) has been formed with the purpose of remaining up to date with the latest requirements of the industry, academics and incorporating necessary components in the curricular and extracurricular activities.
- The DAB is composed of representative members from eminent institutions, industry, alumni, parents, students and faculty of the department.
- Following are the external members of the committee for three consecutive academic year starting from 2020-21.

MR. NARENDRA KALE
DIRECTOR,
N. N. TECHNOLOGY SOLUTIONS,
NAVI MUMBAI

MR. AMIT VERMA
PRODUCT MANAGER,
BILLDESK, MUMBAI

DR. LOCHAN JOLLY
PROFESSOR, DEAN (STUDENT & STAFF WELFARE),
TCET, MUMBAI

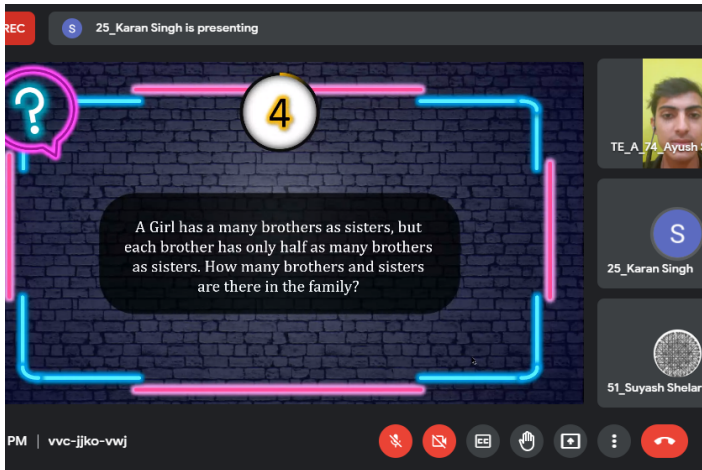
DR. HARISH DIXIT
ASST. PROFESSOR, BITS PILLANI,
HYDERABAD

DEPARTMENTAL EVENTS

ELECTRONICS & TELECOMMUNICATION ENGINEERING

The Department has conducted many events such as Workshop on Step towards VLSI Design using FPGA, Fundamentals of Embedded C, Scope of Embedded Systems in real-life applications. Some of the major events are highlighted below:

QUIZARDS OF TECHNO



On the occasion of Engineers Day 15th September 2021, IETE-SF organized an exciting event named "Quizzards of Techno". It was a Technical as well as GK Quiz Competition in which participants from all departments of college participated with great enthusiasm.

There were two slots and a total of 16 teams participated, that is 48 students in this event. Each team consisted of 3 members. The Quiz was unique in itself because it was held on a virtual platform. The Quiz had three rounds.

The rules and regulations of the quiz were explained at the beginning. The three-round competition includes Technical-GK Quiz, the image recognizing, and the Brainteaser round, which engaged the students for one and half hours wrecking their brains! The quiz was carried out smoothly by the organizing team.

The students enthusiastically participated & showcased their brilliance by rapidly answering the questions. Though some of the questions were very tricky, the students tried to answer them with confidence. They found this competition very informative and knowledge enriching.

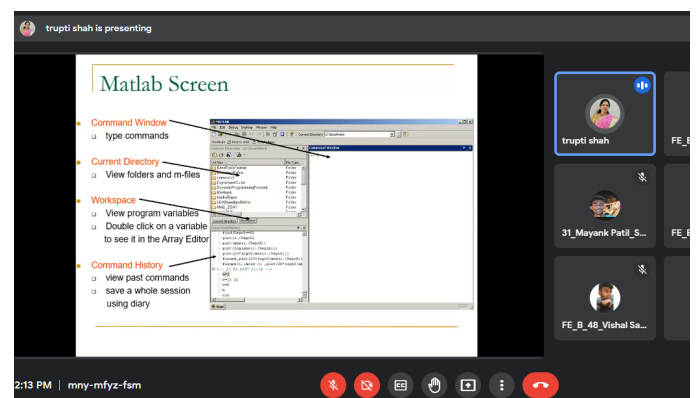
The winners were Harsh Dodiya, Amey Morye, and Yash Barot.

First runner ups were Suyash Shelar, Sanika Patil, Pranaya Gore and Second runner-ups were Divya Mandavia, Parthenon Puri, Karan Patra.

WORKSHOP ON "LEARN WITH OCTAVES"

On 11th February 2022, IETE-SF organized an informative workshop named "LEARN WITH OCTAVE" which was led by Ms. Trupti Shah, Asst. Prof, EXTC, VCET. In this event, the participants were taught the basics of OCTAVE- a highly advanced programming language. This workshop provided more knowledge about OCTAVE software, MATLAB, and its simulation. Ms. Trupti Shah then presented the outlines of this workshop which included a presentation and a simulation on free online software. She further started with the terms and basics such as what is MATLAB/ OCTAVE? How MATLAB Screen, OCTAVE Screen, Variables, array, matrix, operators, and display facilities will help us in learning this programming language.

Later, simulation was performed on OCTAVE software. She then taught how to code and create programs on Octave and get desired outputs such as waveforms, matrices, pie diagrams, and many more. In the end, Ms. Trupti Shah took an interactive session and asked for doubts and queries from the students.



DEPARTMENTAL EVENTS

ELECTRONICS & TELECOMMUNICATION ENGINEERING

FE QUIZ

IEEE VCET SB organized an exciting F.E. Quiz Competition for all the first-year students on 18th February 2022. The FE quiz was organized to cheer up the first-year students as they begin their engineering journey.

The students from all the departments were the enthusiastic audience to witness this exciting event. All the students were at the edge of their seats to know the answers and the participants were very active.

The event concluded with the prize distribution ceremony. The winners and the runner-up were felicitated by the Principal who shared his words of wisdom and encouraged students to take part in such activities. FE Quiz was indeed a learning experience for both the audience and the participants. The participants were thrilled to be a part of the beautifully organized event.

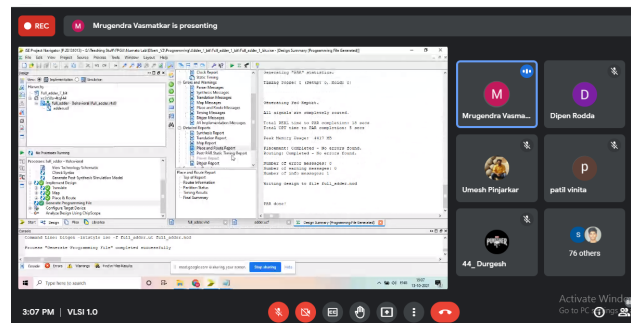


VLSI TECHNOLOGY 1.0

IETE-SF organized an amusing event named "Learning of VLSI Technology 1.0" on 13th October 2021 at 2.00 pm. For this event students of different colleges were present too, the event was conducted using Google Meet platform.

For this event the chief guest and speaker were Mr. Mrugendra Vasmatkar; Assistant Professor EXTC, Vivekanand Education Society's Institute of Technology, Chembur, Mumbai.

He taught the VHDL Programming and IP implementation on the software named XILINX. Sir discussed the scope of VLSI technology not only in India but also outside of India. He also shared his views on how to approach getting better placements in this field. Every doubt of students regarding VLSI Technology was solved at the end as well.



BUILD YOUR OWN PCB

On 13th October 2021; IETE- SF organized an informative workshop named " Build your own PCB". In this workshop the participants were taught an effective PCB formation layout designing. This workshop provided more knowledge about PCB layouts on Eagle Software.

The workshop was inaugurated at 10:30 AM, it was conducted on Google Meet. Later, Mr. V. V. Kale, Director, Phenix Electronics, Mumbai gave insights about Eagle software and its uses and spoke about future aspects in the research field, and encouraged students to participate in the same.

He introduced students to EAGLE CAD which was an online software specially designed to create and simulate schematic PCB layouts. Later he also described each and every step so well, the tools, the various functions, etc.

The common mistakes made by the students while performing the simulation were highlighted by him. It proved really very helpful for the students in their MINI PROJECTS and other various technical paper projects. It was a fun experience watching the apparatus and PCB being made, for the first time.

DEPARTMENTAL EVENTS

ELECTRONICS & TELECOMMUNICATION ENGINEERING

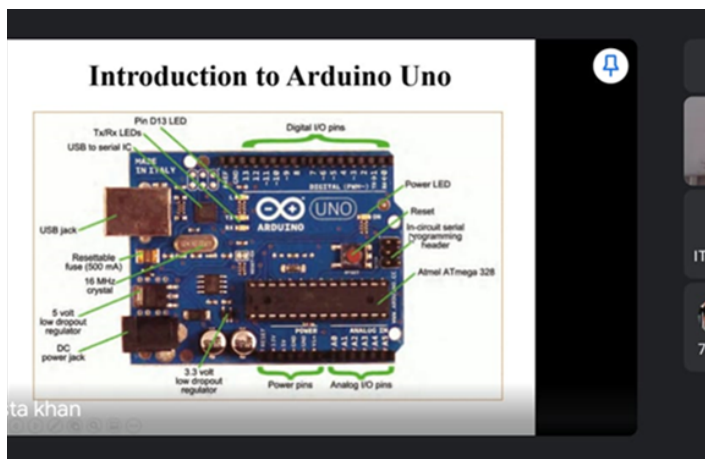


ARDUINO WORKSHOP

A Three Day workshop on Arduino was organized by IEEE-SB from 4th - 7th March 2022 from 2:00 - 5:00 PM. The workshop was organized for Second Year students. The main objective of this workshop was to provide the fundamental knowledge of Arduino Programming.

The topics covered in the workshop included "Hardware and Software Programming". The outcome of the workshop was to brush our skills on Arduino as well as its simulator.

The event started by giving a brief description of the components which will be used during the workshop along with the basic coding required for coding Arduino UNO. We got to know How to use the Arduino IDE (Integrated Development Environment), Powering and connect your Arduino to your computer, and upload programs to your Arduino board. With the help of this workshop, IEEE -SB has tried to instill a basic knowledge of Arduino in students which will be very useful to them for their future projects.



OSCILLATIONS'22

IETE-SF organized an amusing event named "OSCILLATIONS'22 -THE TECHNICAL PAPER PRESENTATION". In this event, the participants were required to present their presentations regarding their projects.

This event provided a great platform for young minds to showcase their technical knowledge and learnings through their papers works. The Chief guests for the event were Mr. Atul Wad, Dr. Suvarna Bhise, and Dr. Anjana Rodrigues.

There were 3 tracks in this competitive event. Track 1 was based upon Embedded and Control Systems and the participants were of FEs and of SEs. About 15 groups participated in Track 1 among which the 1st prize was won by Sarvesh Sant, Pawan Singh, Hetsi Parmar, and Mrudula Bidvi.

The topic of track 2 was FPGA-based projects. About 8 groups participated in track 2. Among them Shubham Bari, Komal Gupta, and Rohit Chavan, Aniruddha Mane won the 1st prize.

Track 3 was mainly based on ML and AI projects. About 10 groups participated in track 3. Among them, Mayank Agrawal, Abhishek Dhule, and Jayesh Deorukhkar won the 1st prize.

The event concluded with the prize distribution ceremony and a group photograph of all participants of the respective tracks.



FACULTY ACHIEVEMENTS / ACTIVITIES

RESOURCE PERSONS

- Dr. Vikas Gupta was invited as a session chair in Multicon-W2022 13th International & National Conference & Workshop, at TCET, Kandivali (East)
- Dr. Amrita Ruperee was invited as a guest speaker at the 11th International Conference on Electronics, Communication and Networks which was held in Beijing, China (online mode)
- Dr. Amrita Ruperee was Reviewer for Physical Communication, Elsevier's Reviewer Hub, NX Amsterdam, Netherlands.
- Dr. Amrita Ruperee was Reviewer for International Journal of Communication Systems, Wiley publications, Hoboken, NJ, USA.
- Dr. Amrita Ruperee was Reviewer for IEEE Access publisher.
- Dr Sunayana Jadhav was invited as session Chair, IEEE International Conference for Intelligent Technologies (CONIT-202 I) Technically Co-sponsored by IEEE Bangalore section in KLE Institute of Technology. Hubballi,
- Dr Sunayana Jadhav was Resource Person in Faculty Development Program on "Sensor Technology" at Xavier Institute of Engineering, Mumbai
- Many faculty members were convenor and members of syllabus revision committee R'19 of Mumbai university.

WORKSHOPS / WEBINARS CONDUCTED

- Ms Shaista Khanam conducted Workshop on "Arduino and Raspberry Pi" at Atharva College, Mumbai
- Ms Shaista Khanam conducted Workshop on "Node MCU-IoT Applications" at RGIT, Mumbai
- Ms Trupti Shah conducted Workshop on "Learning with Octaves" at VCET, Vasai
- Dr Sunayana Jadhav, Ms Shaista Khanam, Ms Ekta Naik and Ms Trupti Shah conducted Workshop on "Steps towards VLSI design using FPGA" at VCET, Vasai
- Ms Shaista Khanam and Ms Trupti Shah conducted Workshop on "Aurdino" at VCET, Vasai
- Ms. Shaista Khanam, Ms. Ekta Naik, and Ms Trupti Shah conducted two weeks of internship training on "Embedded System using Texas Instruments Microcontroller" at VCET, Vasai
- Ms Shaista Khanam conducted Webinar on "Fundamentals of Embedded Systems with Journey of Microcontroller" at Atharva College, Mumbai

CONFERENCE / JOURNAL PUBLICATIONS

- Ms Trupti Shah presented a paper titled "A Chatboat as a first responder for Panic Attack" at IEEE conference held in Pillai college, Mumbai
- Ms Ashwini Katkar's paper titled " Malware Intrusion Detection for System Security" published in IEEE Xplore 2021, International Conference on Communication Information and Computing Technology (ICCICT)

FACULTY ACHIEVEMENTS / ACTIVITIES

- Ms Shaista Khanam and Ms Trupti Shah presented a paper titled "Smart Solar Tracker with Energy Monitoring" at IEEE conference held at Mother Teresa College, Tamilnadu.

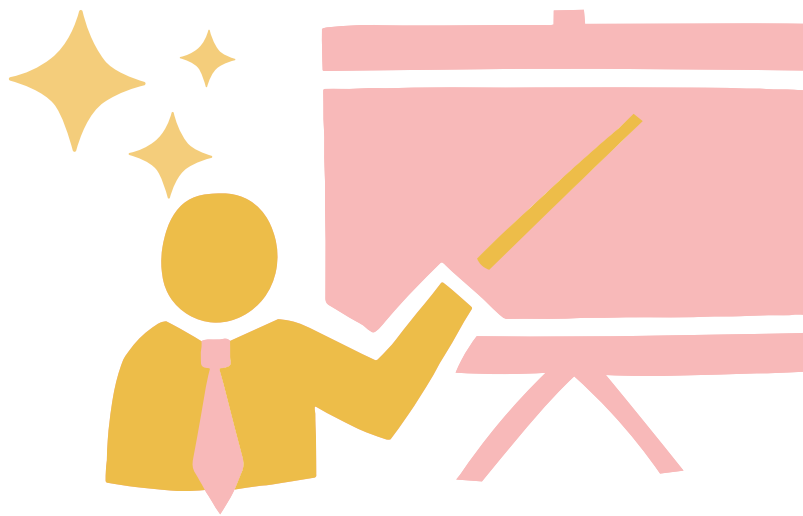
FDP / Workshops / Trainings attended

- Dr. Vikas Gupta completed AICTE Training and Learning (ATAL) Academy FDP on "Electric Vehicle: Design to Product Development."
- Dr. Amrita Ruperee attended a Two-Day workshop on 'Improving Research & Performance Outcomes'
- Dr. Amrita Ruperee attended "Excel at MS Excel for Effective Organization of Quantitative Metrics data of NAAC"
- Dr. Amrita Ruperee completed NPTEL course on Principal of modern CDMA/MIMO/OFDM wireless communication and secured Elite Gold.
- Dr. Sunayana Jadhav completed NPTEL course on "Introduction to Industry 4.0 and Industrial IoT"
- Ms. Shaista Khanam and Ms. Neha Gharat completed NPTEL course on "Introduction to Machine learning"
- Dr. Amrita Ruperee, Dr. Sunayana Jadhav, Ms. Shraddha Gosavi, Ms. Sandhya Supalkar, Ms. Ashwini Katkar, Ms. Neha Gharat, and Ms. Ekta Naik attended Faculty Development Program on "Inculcating Universal Human Values in Technical Education"
- Ms. Sandhya Supalkar completed Faculty Development Program on "Emerging Paradigms in Artificial Intelligence and Data Science"
- Ms. Ekta Naik completed Faculty Development Program on COURSERA: Introduction to Artificial Intelligence (AI)
- Ms. Ekta Naik completed Faculty Development Program on COURSERA: Machine Learning for all
- Ms. Ekta Naik completed Faculty Development Program on ATAL: "IoT a Journey from Sensor to Server"
- Ms. Neha Gharat completed Faculty Development Program on "Foundations of Cyber Security & Digital Forensics"
- Ms. Ashwini Katkar completed Faculty Development Program on "Cyber Security: Individual, Technology & Research Trends"
- Ms. Ashwini Katkar completed Faculty Development Program on "Modelling and Simulation Tools for Research"
- Ms. Ashwini Katkar completed faculty Development Program on "Telecommunication Networks" held by Vidyalankar Institute of Technology, Mumbai

FACULTY ACHIEVEMENTS / ACTIVITIES

FDP / WORKSHOPS / TRAINING ATTENDED

- Ms. Shraddha Gosavi completed Faculty Development Program on “AICTE -“FDP - Cryptography & Cyber Security”
- Ms. Shraddha Gosavi completed Faculty Development Program on “COURSERA: Digital Forensic Concept”
- Ms Shaista Khanam and Trupti Shah completed Faculty Development Program on ATAL: "IoT a Journey from Sensor to Server"
- Ms. Shaista Khanam and Trupti Shah completed Faculty Development Program on “National Level online (two credits) course on “Research and Publication Ethics”
- Ms Shaista Khanam and Trupti Shah completed Faculty Development Program on “Hands-on "Machine Learning"
- Dr. Sunayana Jadhav completed 2 weeks Faculty Development Program on “IoT and Applications (Smart Systems)” conducted by IIT Roorkee, MNIT Jaipur, NIT Patna supported by Ministry of Electronics and Information Technology, Government of India.
- Ms Shaista Khanam, Ms Ashwini Katkar, Ms Neha Gharat, Ms Ekta Naik and Ms Trupti Shah completed 2 weeks Faculty Development Program on “Machine Learning and Computer Vision” conducted by IIT Roorkee, MNIT Jaipur, NIT Patna supported by Ministry of Electronics and Information Technology, Government of India.
- Ms Trupti Shah attended Faculty Development Program on “Atal- Internet of Things”



STUDENT ACHIEVEMENTS

Oscillations (Paper Presentation Competition)

Track 1 Second Year



Pawan Singh
Sarvesh Sant
Mrudula Bidvi
Hetsi Parmar



Vaibhav Mishra
Dhanashree Tandel
Sankalp Chauhan
Lakitaa Vangari



Nikhil Kargatia
Vadehi Gohil
Omkar Dhuri
Samarth Kole



Achintya Nagar
Shubham Shukla
Ankit Pandey
Vikas Yadav

Track 2 Third Year



Shubham Bari
Komal Gupta
Rohit Chavan
Aniruddha Mane



Aniruddha Kamble
Chinmay Raut
Ashwin Nair
Omkar Sadadekar

Track 3 Final Year



Mayank Suresh
Agrawal
Abhishek Dhule
Jayesh
Deorukhkar



Rahul Kamble
Apurva Gurav
Hrithik Wayal
Shreyash Takke

CONGRATULATIONS

STUDENT ACHIEVEMENTS



Ms Khushi Shah, Shraddha Patil and Akshata Patil were second winner for project competition held in VIVA institute of Technology, Virar.



Ms Prachi Purohit presented a paper titled "A Novel Communication Network Level Steganalysis System" at the international conference held at NFSU, Gujarat.



Ms Adisha Waghare, Snehal Singhi and Purna Tiwari presented a paper in ICCCDs Conference on Communications, Computing and Data Security – 2022 held at TCET, Kandivali, Mumbai



Ms Nalanda Patil and Nishant Patil (E06- Team Ethan Racing Electric Vidyavardhini's College of Engineering and Technology) participated in 5th Annual FSEV Concept Challenge (FSEV 2021).



Mr Shubham Bari, Ms Shruti Kuvkar and Ms Komal Gupta and Rohit Chavan presented a paper titled "Smart Solar Tracker with Energy Monitoring" at IEEE conference held in Mother Teresa College, Tamilnadu



EXTC in AVAHAN 2022
Winner in Chess (Dept)

EXTC in Zeal 2022
Fact n Furious Winners (BE EXTC)
Group Dance Winners (BE EXTC)



EXTC in AVAHAN 2022
Runner up in Tug of War (Dept)
Runner up in Badminton (Dept)

EXTC in Zeal 2022
AdMad Show Runner up (TE EXTC)

Higher Studies



Mrunmay Sahasrabudhe

Batch 2018

MS in Electrical and Computer Engineering

University of Pittsburgh



Lohit Nambier

Batch 2018

MBA(ITBM)

Symbiosis International



Ankita Jadhav

Batch 2018

MS in Microelectronics University

Bremen



Amit Shrote

Batch 2019

M Tech IIT, Bombay



Varun Pillai

Batch 2019

MS in Electrical Computer,

University of Windsor



Tanvi Patil

Batch 2019

MS in Electrical & Computer Engineering

Portland State University



Umang Waghela

Batch 2020

MS in Telecommunications

University of Maryland's Graduate School.

Higher Studies



Dhananjay Bhavsar

Batch 2020

MBA, MET's Institute of Management



Vaibhav Yadav

Batch 2020

MS Electrical Engineering
Graduate School of Northern Illinois University



Vishruti Gharat

Batch 2022

Msc Global Business Management,
Rennes School of Business,
Paris, France



Kamath Deeksha

Batch 2020

MS in Computer Engineering
Portland State University



Manpreet Juss

Batch 2022

Master of Management
Schulich school of Business affiliated
under York university
Toronto, Canada



Parinistha Sharma

Batch 2022

MS in Human Computer Interaction
College of Computing and Digital Media
DePaul University
Chicago, Illinois

STUDENT ACHIEVEMENTS

Campus Placement Batch 2022

Congratulations to all placed Students!!!

NO.	NAME	COMPANY
1	Shah Shlok	TCS
2	Darji Rushabh	TCS
3	Kotegar Shriraksha	TCS, Zensoft, Zensar
4	Gavankar Hrithik	TCS, LTI
5	Takke Shreyash	TCS, Wipro, Virtusa
6	Wayal Hrithik	TCS, Wipro, Infosys, Virtusa
7	Nair Aishwarya	TCS
8	Gole Pratik	TCS, Wipro
9	Tank Jhanvi	TCS
10	Juss Manpreet	TCS, Zensoft
11	Maurya Priya	Wipro, Feedspot
12	Sawant Rushikesh	Wipro, Zensar
13	Sharma Parinishta	Zensoft
14	Gawas Akash	Zensoft, Zensar
15	Nayak Varun	Zensoft, Infosys, Wipro, Capgemini
16	Mohanty Namita	Wipro, Infosys
17	Singhi Snehal	Zensar
18	Patil Akshata	LTI
19	Gurav Apurva	LTI
20	Pal Raj	Wipro

STUDENT ACHIEVEMENTS

Campus Placement Batch 2022

Congratulations to all placed Students!!!

NO.	NAME	COMPANY
21	Kogaonkar Priyanka	Wipro
22	Rane Gouresh	Wipro
23	Kharwar Ankit	Wipro
24	Gosavi Bhavesh	Wipro
25	Iyer Shamini	TCS
26	Patil Shraddha	Zensar
27	Sankhe Rutuja	Zensar
28	Bhoir Suyash	Qspiders
29	Salunkhe Rohit	Hexaware



L&T Infotech



TATA CONSULTANCY SERVICES



ALUMNI



CORNER





Amit Verma
Batch 2005

A pro-active FinTech product manager,
With 15 years of experiences
Experienced and skilled in:
Product Management
Project Management

How much on the surface have we explored FinTech in India?

The term 'FinTech' when it was first 'invented' to do with using new age digital technology to support or improve the financial products more like backend systems. Today, however, FinTech has reached various sectors and industries, including education, retail banking, investment management, and much more through specialized products and solutions. FinTech helps organizations manages their processes and operations.

India being one of the largest and the fastest growing economies, fastest growing FinTech hotspot in last 5 years. Ten years ago it was about mobile banking, mobile ticketing, Internet Banking and other portals available on the internet of the user's PC. All this looked fancy but had very less user base. With the adoption of Mobile devices, increased internet access, and high-speed connectivity it has made easier for India's population to get easy access to the basic financial services on the hand handled devices. This has given a services on the hand handled devices. This has given a huge boost to the FinTech

“To all the VCEIT students, you are at a great place, take full advantage of it. Go beyond your syllabus and discuss more with your teachers.”

industry in India with every second startup in our country doing something which is again 'FinTech'. India's payment infrastructure, thanks to NPCI, and multiple initiatives by government has created a substantial growth opportunity for FinTech all over the country. Post demonetization, which also have seen pandemic of COVID-19, we are doubling on our mobile based payments number year on year. Players like Paytm, Phone-pe, G-Pay, Amazon pay have already created a massive ecosystem which enables user to go shopping without a physical wallet. It's all about UPI, BHIM, BBPS these days - Instant payments. Despite all this, a huge portion of India remains underbanked, underserved and subject to a constantly changing regulatory environment. And for these very reasons, the nation's financial landscape and unsolved challenges are no easy hurdles to overcome. Fintech with its ability and power to fundamentally transform India's financial and banking services sector. For India to become a hotbed for fintech, it must study and adopt some of the regulatory practices followed in the best fintech ecosystems of the world. We must create a system to monitor the risks and regulatory impact of financial technology development, give tax incentives regulatory support and trust for the FinTech industry, to the adoption among consumers in India. This makes it imperative for fintech companies to simplify to foster transparency, eliminate confusion, and build reliability.

Looking at all these, we can proudly say we have achieved what many developed or developing countries can just dream of. We have built UPI which has already been adopted by almost 10 countries but have a lot more to work on or improvise. Bringing those tier 2 & 3 cities under this FinTech revolution, creating products suitable for any hand handled device, setting up kiosks, build and invest on strengthen the security so that contactless card based payments can be given a push creating a more competitive market alongside UPI.

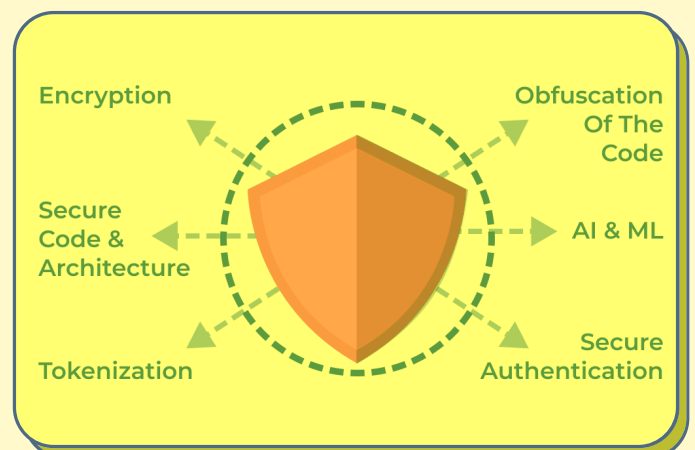
Why do you think fintech shall replace traditional banking? What do you think about the transition gap effects?

FinTech provides the necessary fuel for a bank to offer a more rich experience to its end customer. Bank has been in constant innovative mode to make use of FinTech to make traditional banking experience more interesting for their customers. Banks are actually taking this as a channel from various FinTech players in the market and building on their own technology infrastructure and launching new age apps for their customer.

With a large population shifting their attention from a regular bank to FinTech's, it is easier to say that Fintech will one day disrupt the traditional banking market. Traditional banking still has an upper hand with people still wanting to deposit their hard earned money into bank and making use of lockers to keep their valuables. One important factor which traditional banks has earned here is 'TRUST' which will take years and years for FinTech to achieve. If you see the FinTech space in these times, it is not that startups are directly wanting to compete with banks however they are willing to work with them and build on the customer base banks already have. Instead of looking at this a competition between FinTech's and Banks, it is basically a collaboration between them which will help Fintech earn that TRUST. It is expected that in the next three to five years FinTech's and banks will both continue to benefit by working in tandem rather than by competing in the market.

Can you tell us about the incorporation of Security in Fintech?

Security is a very important aspect when it comes to FinTech industry. FinTech's these days are highly vulnerable to security attacks due to some obvious reasons since it deals with highly sensitive customer data like cards, accounts, passwords, OTPs etc. Looking at the number of frauds which keeps happening by exploiting the common payment modes like card and UPI, RBI has been instructing banks and Fintech's to ensure they have strict audit policies to ensure customer data is safe and secured. FinTech again plays an important role in supporting banks to achieve this by placing necessary and latest encryption algorithms to save customer data safe and secure. Use of AES, CBC and RSA are the most popular ones in India. A new trend in the market is the tokenization of the card used for regular payments, and avoiding storing the end customer's card data - the save card option which is common on shopping websites. This allows FinTech companies tracking of sensitive data through transactions. This is not just FinTech's responsibility however equally challenging for the bank to build technology at their end to authenticate using tokens. They ensure to build infrastructure is secure and updated for any new vulnerabilities. For example, being of a log4j vulnerability made all FinTechs and other companies alter their code to address the vulnerability. Artificial Intelligence and Machine Learning are one of the important technology to build a secure ecosystem for a FinTech user. It helps understand user behavior and triggers appropriate algorithms to report data inconsistency and ask for additional authentication.



What do you think is the future of UPI towards its advancement going further?

A huge success story of UPI with a year on year growth in the number of transaction done via UPI, it is already a most preferred mode of fund transfer, either P2P or P2M. New generation who are very active on their mobile devices has been quite comfortable to adapt to this new technology and are using in their day to day lives. Population who has at least a bank account but don't have a high end device to make use of BHIM or any other UPI apps. NPCI has recently launched a UPI lite app for feature phones which makes use of IVR and USSD to on-board users on UPI. This is a great move by NPCI however again educating it will be challenged. Taking UPI global is also one of the important milestone for India. We are already in some of our neighboring countries like Nepal, Bhutan etc. It will be one of the biggest achievement if we can enable cross border payments using UPI. Work on the same is still in progress and we will see this happening in near future.



Apart from fintech, which other technologies have you worked with that excite you?

I am into FinTech industry for almost 12 Years now and it still bring something very new to learn and understand every day. At the start of my career I was more into Telecommunication while working with Airtel and other Value added service providers which have now become leading FinTech's. Other than FinTech, Blockchain is one of the most talked about and latest technology in the market which definitely excites me. While currently I am not directly working on it however I try to keep myself updated with the latest trends in the market around Blockchain.

-Interviewed by
Kushal Raut & Mitali Bose

If you wanted to give advice to your past self, what would it be?

I would first want to congratulate myself for all the wonderful things I have done and explored in my past. For all the brave decisions I have made, those were tough and instant – I would want to slow down a bit, think and then decide. Take better care of yourself and your near and dear ones.

How was your experience in college and your key learnings in the four years of Engineering?

Fantastic. That's how I would like to describe my experience in VECT. VCET has played a very important role in shaping my career. Fortunately I am from that decade when mobile phones were not so common. That made us spend a lot of time in the college, speaking to our engineering mates, talking to our teachers, discussing a specific question or a problem to find a suitable answer.

If someone wishes to step into the world of FinTech and Managements, what are the prerequisites?

FinTech aims at solving end customer's problems and provide better and innovative technology solutions to their clients and customers. FinTech's primary distinction is technology and that defines the pre-requisite to get into FinTech industry. Technologies like Java, Python, SQL, AI and ML, AWS etc can help developer profiles which leads us to the sector's key opportunities such as Product Managers, Projects mangers and Business Analysts.

What advice would you like to give to our readers?

To all the VCET students, you are at a great place, take full advantage of it. Go beyond your syllabus and discuss more with your teachers. To other readers, thank you for showing interest in this topic. FinTech has its own pros and cons and it relies more on customer feedback and rating. Next time when you get a chance to share your experience, please feel free to do so. Someone is listening to you and is already working on building exciting, secure, and innovative products for you.



Ashutosh Nerkar
Batch 2013

“Don't believe in anything i.e Question everything. Challenge yourself, challenge whatever you have studied. Experience everything by yourself and then keep the faith.”

Assistant General Manager at Vodafone Idea
Work Experience at AGM-National Account
Manager, Strategic Accounts, Vodafone Idea
Limited, Vi Business, Enterprise Sales
studied MBA, Marketing & Strategy
Certified Scrum Product Owner (CSP0)

Can you elaborate on your profile a little bit?

I am currently an assistant general manager at Vodafone Idea and recently many new roles, projects and publications have been assigned to the assistant general manager at Vodafone.

Sir, you have worked on many technologies like 5G & IoT solutions. I had a question that there are many IoT solutions & smart solutions in everything today. What and how do you think is that compatible for them?

So, let's understand that smart solutions and IoT solutions are two different things. Smart solutions are things that can think on their own, they have some intelligence in them, they take quick decisions without having an active input from the user. IoT solutions are the internet of things which means they are connected to the internet or they are connected to another device. Connection to the internet could be a wireless technologies over, Bluetooth, WIFI, etc. or could be wired communication. IoT solutions and

smart solutions are indeed present in everything today. Because knowledge is developed, but we don't have that currently in our home. So far we have not found it very critical or very highly valued than what we have today. Currently, if we do get up from our bed & on the switch of the fan, by pressing the button. We are not seeing that there is a big value in getting on board with smart IoT solutions. Hence, even though the technologies exist, pricing that these technologies bring with them is not so compelling that a customer/user will switch over from their existing ways of working to smart IoT solutions. Smart IoT solutions are there to solve certain problems to make your life easier, but not compelling to switch over, to give some extra values, by gathering the data, analyzing them to give insights.



Sir, can you share one of the most valuable life lessons that you have learned?

One of the most valuable life lessons that I have learned is that you have to know what are your strengths and your weaknesses. They don't remain throughout your life, if you work on them, you can utilize accordingly. A smart individual will utilize his strengths to build on them and his excellence; he will work on his weaknesses.

We would like to know how our students should prepare themselves to secure a job in core branches?

First of all, the core branch for EXTC is opening a big time because Tele-communication is an ongoing changing field, which is called LTE i.e long-term evolution which means it is going to keep evolving for the long term. There will always be something new to learn for the people who want to work in the core branch. There is narrowband technology coming in new technologies that are coming in the market. These technologies require talent which is going to prepare for the job role. Various certifications are apart from a normal bachelor's degree will come handy. My suggestion is that you do relevant certifications in the field you want to go.

Since you work with many technologies & industry 4.0 is near. So we wanted to know what you think about the future of industry 4.0?

Industry 4.0 is a very big umbrella term, there are several technologies under industry 4.0. So, Industry 4.0, is a collection of all the latest technologies. These technologies have their future and the stage level for each of them is different. There is GARTNER HYPE CYCLE, it is a graph published by Gartner which is the world's leading information consulting company. They talk about the new technologies that are available in the market and are progressing.

Would you like to give any advice to the readers about anything in particular?

The reader should know that life will seek itself out, so don't get too stressed about everything. Enjoy the day as it comes.

There is also IoT, AI, and ML in it so how do industry 4.0 and all these terms are in unison? How are all these dots connected?

IoT by itself is just an interconnection of devices. But that interconnection of devices by itself is not very conventional. So, all data that it gathers, needs to be processed and then have to be analyzed to create some real values, by creating some interesting insights. Now, the data which you have gathered is immense therefore it is known as metadata, which is dynamically getting created by every second. Machine learning comes into the picture when these large amounts gathered of data need to be handled. When ML becomes self-adaptive which means there is a certain change required then the machine will make these changes on its own, and then that becomes AI.

Sir, if you wanted to go back to your past and wanted to correct something or wanted to say a piece of particular advice to yourself what would it be?

I would advise that life is a very broad term, which is in compartments like studies, family, relationships, etc. We make these compartments in our life which are not necessary, rather they are a problem to create because once compartments are created then competition between them starts like who will give more time to family or career, etc. Never create compartments in life. take life as a whole.

What Qualities should be developed from the college days to prepare for a professional life that will be more useful?

Don't believe in anything i.e Question everything. Challenge yourself, challenge whatever you have studied. Experience everything by yourself and then keep the faith. Follow the scientific path with reasons for your questions, don't believe hypotheses. Research the hypothesis to know whether it's true or not. If it's true then accept it if not then change the way of doing that experiment or work.

-Interviewed by
Shamini Iyer & Nilesh Jangid



Yash Lal
Batch 2019

“ College has played a key role in developing my overall personality. Teachers are very supportive in terms of your career goals, we have a good infrastructure for student committees and activities as well. ”

**Working at Infosys as a Senior Software Engineer,
Have trained in Big Data Technology
Working on Business Intelligence
Technologies, namely Data Visualization and Reporting.**

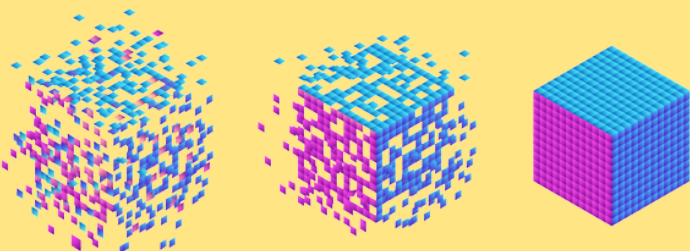
How is your work profile & responsibilities as Senior Software Engineer at Infosys?

I am working as a senior systems engineer with client Fiserv, which is Fortune 500 fintech company. I am a part of the business intelligence team here and work on Data visualization using IBM Cognos Analytics.

What has been your most challenging or rewarding academic experience so far?

Working on the final year project, collaborating within the team and getting the work

Big Data Analytics Decisions



done within set time lines is one of the many rewarding experiences that I cherish. Also managing the studies and pursuing new skills as well is some of the challenging experiences so far. Besides while managing these whole things we are getting sufficient experience.

Can you tell us more about Data Visualization and Reporting & how it interests you?

Data Visualization aids in taking smarter and efficient business decisions. I work in making sure that the reports which our clients use do not have any issues as well, hereby enabling them take better decisions. Data is very interesting to work with and the reporting part is making some sense out of the vast quantity of data we have using dashboards. Understanding the use and importance of my work is what keeps me interested here.

" Big Data Technologies is a software tools for analyzing, processing, and extracting data from an extremely complex and large data set. "

What qualities should a student develop in college life to be benefitted in his/her professional life?

Communication and time management are important soft skills which people must learn, as early as possible. Also, participating in the various events which the college organizes assists in exploring your options and building the required soft skills.

Data visualization is the practice of translating information into a visual context, such as a map or graph, to make data easier for the human brain to understand and pull insights from.

How did the college prepare you for your career?

College has played a key role in developing my overall personality. Being a part of the IETE committee and managing events has helped me build my interpersonal skills as well. College add on a huge value in everyone's life. Every activity we do, every skill developed during the college have an immense worth in ones career. It provides seminars, workshops and many more opportunities which help students to get ready for industry. One should enjoy the college life and also gain the knowledge mainly 'practical knowledge' is the whole meaning of the college in my terms.

For students who are confused between choosing Big Data, AI, ML, what is your take?

Go through the basics, try to get an understanding of what these things essentially mean. Rather than checking for other people's advice, getting a brief hands on will help more. Take a decision after going through brief tutorials, there are many resources available online, many of them free as well.

What is your valuable suggestions for the young engineers?

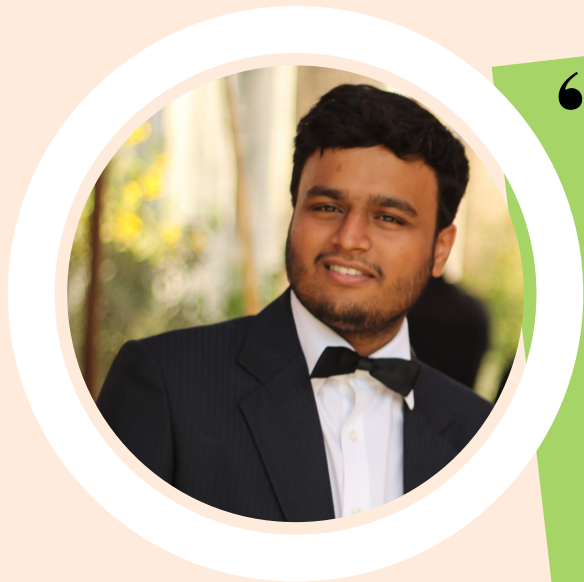
Explore your options and don't stop learning. Explore the current market trends and try leaning basic skills required so that one can have an understanding of whether one can enjoy pursuing a career as well in such a relevant stream.



Was there anything you did not like about college?

I do not believe there is anything as such. Teachers are very supportive in terms of your career goals, we have a good infrastructure for student committees and activities as well. There are multiple opportunities and one must try looking at those rather than the shortcomings is what I believe.

-Interviewed by
Sneha Jaiswal and Riddhi Garudkar



Murnmay Sahastrabudhe
Batch 2017

“ Getting only knowledge is not enough in the real world, managerial knowledge, extracurricular or cocurricular activities are as important as the GPA. ”

Worked at Infosys as a Senior System Engineer, Worked as a .net developer and on projects like developing chatbot for client.
Pursuing MS(Computer Engineering) in ASU, Thesis in Quantum Computing and Machine Learning.

How was your work profile & responsibilities as System Engineer at Infosys?

I worked in Infosys as an Senior Systems Engineer. As a .net developer. I worked in Infosys on various projects such as developing chatbot for client.

What has been you most challenging or rewarding academic experience so far?

For me studying for final exams is the most challenging. But I had great support from professors and staff. Doing projects and working for IEEE, IETE, ETA was the most rewarding experience in my college days. Simultaneously managing the GPA, learning new skills was more challenging.

Why do you want to receive MS degree? Why now?

Getting a masters degree is essential now days to climb the ladder in career. To stay updated in Computer Engineering field and learn about it I choose MS in Computer Engineering.

Any particular reason why you choose to do thesis in Quantum Computing & Machine Learning?

Quantum Computing and Machine Learning is recent hot topic for research. Its still in crib of being a boom in technology.

What are lesser known facts about MS?

Doing MS is not like what its shown in American sitcoms. You have to study as well as take care of other things in life. Studying MS is the some way to get higher degree, to stay competitive in the industry.

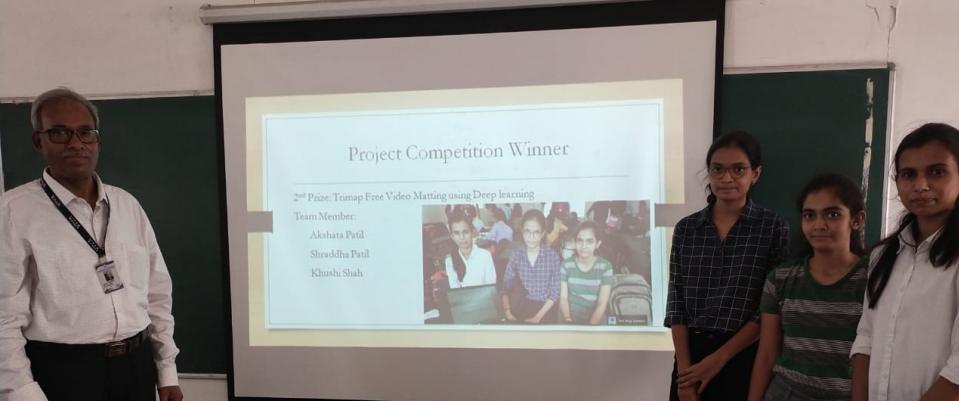
What qualities should a student develop in college life to be benefitted in his/her professional life?

Getting only knowledge is not enough in the real world, managerial knowledge, extracurricular or cocurricular activities are as important as the GPA. Hands on the practical knowledge during the college is equally essential.

What is your valuable suggestions for the young engineers?

Do enjoy the college life. Try to get ready for industry in the college. Its very important that you master one skill.

-Interviewed by
Prachi Purohit & Sanskruti Talgaonkar



“The Fourth Industrial Revolution is still in its nascent state. But with the swift pace of change and disruption to business and society, the time to join in is now.”

- Gary Coleman, Global Industry and Senior Client Advisor, Deloitte Consulting



ETA PULSE

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