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Engineering Institute

Faridipur, Sultanpur, U.P.

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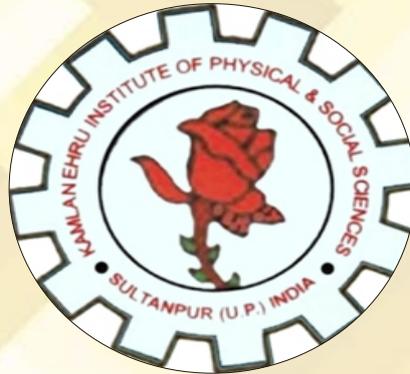Affiliated to AKTU, Lucknow & UPBTE.

Diploma | B.Tech

TECH-VISTA

Annual Magazine 2022-23

Volume 2

2022-23
(JULY)

Institute Vision

To be globally acclaimed technical institution producing competent engineering professionals with human values and societal concern.

Institute Mission

M1: Providing contemporary knowledge of Science & Engineering in coordinated and integrated manner.

M2: Promoting culture of excellence in teaching learning practices supported by modern educational tools and techniques.

M3: Enhancing design and research culture to produce industry relevant professionals.

M4: Inculcating ethics, human values and societal responsibility

Message from the Manager

I am delighted to unveil our college magazine, TECH-VISTA. The magazine is a testament to the extraordinary talent, creativity, and dedication of our students and faculty.

TECH-VISTA showcases the diverse range of thoughts that make our college a vibrant and intellectually stimulating environment. Beyond academic excellence, TECH-VISTA also highlights the importance of holistic development, encompassing intellectual, emotional, and spiritual prospective. This magazine celebrates the diverse talents, intellectual pursuits, and creative endeavors of our students and faculty. From cutting-edge research to artistic expressions, these pages showcase the multifaceted excellence that defines our institution

I extend my appreciation to the editorial team for their tireless efforts in bringing this exceptional publication to life..

Shri. Vinod Singh Ji
Manager

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Tech Vista *Annual Magazine 2022-23*
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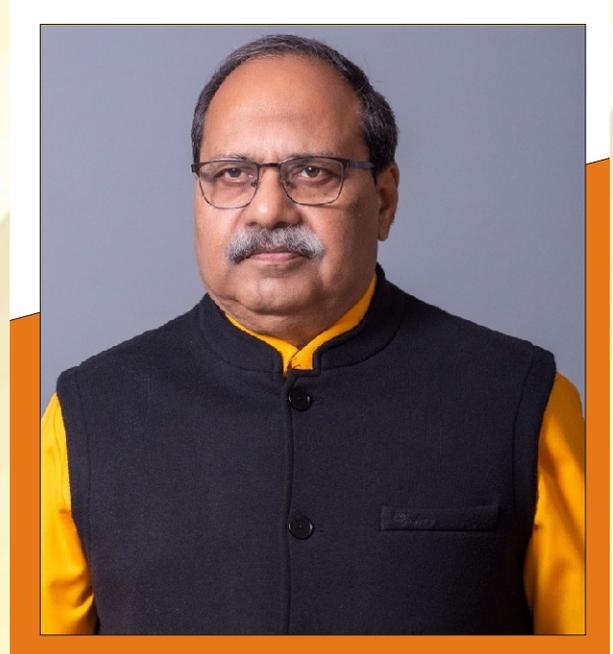
Message from the Director

The publication of our annual magazine TECH-VISTA is a moment of pride for the entire KNIPSS Sultanpur family. In this rapidly evolving world of technology and innovation, education must transcend textbooks and classrooms I commend the editorial team for their dedication in bringing this publication to life.

Their meticulous work has created a lasting record of our institution's growth and aspirations. As we continue our journey, I am confident that KNIPSS will emerge as a center of excellence, contributing meaningfully to society through innovation and sustainable practices.

I encourage all students to embrace this platform as a means of self-expression and intellectual exploration. Let your voices be heard, your ideas be shared, and your perspectives be valued.

Dr. Sarab Preet Singh

Director

Message from the Dean

It is with immense pride to present our college magazine, " TECH-VISTA ." This publication represents the collective effort and creativity of our vibrant student and faculty community.

KNIPSS Engineering Institue stands as a beacon of technical education and innovation. Our commitment extends beyond imparting knowledgewe aspire to develop individuals who are technically proficient, ethically grounded, and socially conscious. The college magazine is more than just a publicationit is a mirror reflecting the soul of our institution. It captures the essence of who we are, what we believe, and where we are headed.

My heartfelt appreciation goes to the editorial team for their tireless efforts. To our students, keep nurturing your talents and passions. The world awaits your contributions

Mr. Ratnesh Singh

Dean

Message **from the** Desk of Editorial Board

A college magazine is a mirror of college life. A college may reach heights of glory but without material like a college magazine, the outside world may not know of it. The role of a college magazine is therefore vital in promoting what an institution offers. It brings out into the open things hitherto unrevealed.

It shows the enthusiasm of students in the field of their extracurricular activities as well as in their academic ventures. A student today is an individual, is a real person with feelings of self respect, sensitivity, responsibility and compassion. We need to recognize, appreciate, applaud and foster the fine blend of sensibilities in a student- and thus this magazine is to be viewed as a launch-pad for the student's creative urges to blossom naturally. 'TECH-VISTA' is one such effort to mirror the mind of young writers who have tried to give way to their various unexpressed emotions and perceptions pertaining to life and society.

Mrs. Tazeem Fatima
Editor

While contributing to the college magazine enhances our creativity, it also hones our communication skills and makes us feel responsible for what we write or express. Who knows, a poem, short story or an article written today might launch you as a creative writer.

Once you get published in the college magazine, you certainly become a distinguished student, appreciated for your contribution. As such, let all of us contribute in some way to enrich the life of the institution, whether it be writing for the college magazine or participating in other extension activities

Mr. Manoj Bhargav

Editor
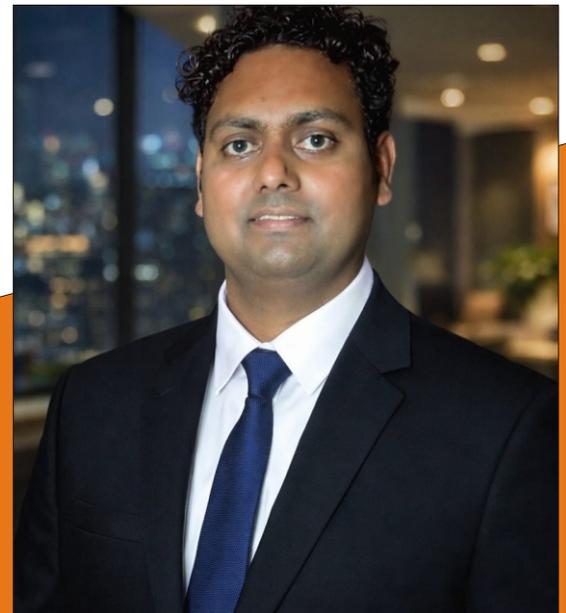
Student Coordinators

1. Vipin Kumar Gupta -Diploma 2nd Year Civil Engineering

2. Mohd Anas-Diploma 3rd Year Civil Engineering

3. Nidhi Mishra - Diploma 3rd Year Electronics& Communication Engineering

4. Samrendra - Diploma 3rd Year Electronics& Communication Engineering

5. Adesh -B.Tech 1st Year Civil Engineering

6. Amit Kumar Pandey -B.Tech 2nd Year Civil Engineering

7. Shubham Mishra -B.Tech 2nd Year Mechanical Engineering

8. Pavan Kumar-B.Tech 3rd Year Mechanical Engineering

9. Bhaskar Singh -B.Tech 2nd Year Computer Science & Engineering

10. Riya Rastogi -B.Tech 2nd Year Computer Science & Engineering

CONTENT

Department of Electronics & Communication Engineering

Vision of the Department

To be a **leading department** producing **competent professionals** in the field of Electronics and Communication Engineering with **human values.**

Mission of the Department

M1: Providing **contextual knowledge & skills** in line with industrial trends.

M2: Promoting **effective teaching** and **learning practices** using **modern tools** and techniques.

M3: Enhancing **the culture of innovation and product development**

M4: Inculcating **ethics** and **soft skills**.

Program Educational Objectives (PEOs)

PEO1: Equip with contextual knowledge and technical skills to solve Electronics and Communication engineering problems.

PEO2: Develop leadership qualities and human values.

PEO3: Prepare for lifelong learning and communication skills.

Program Outcomes

PO1. **Basic and Discipline specific knowledge:** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.

PO2. **Problem Analysis:** Identify and analyse well-defined engineering problems using codified standard methods.

PO3. **Design/ development of solutions:** Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.

PO4. **Engineering Tools, Experimentation and Testing:** Apply modern engineering tools and appropriate technique to conduct standard tests and measurements.

PO5. **Engineering practices for society, sustainability and environment:** Apply appropriate technology in context of society, sustainability, environment and ethical practices.

PO6. **Project Management:** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.

PO7. **Life Long Learning:** Ability to analyse individual needs and engage in updating in the context of technological changes.

Program Specific Outcome's (PSO's)

PSO1: Use of modern technological trends in the field of Communication Engineering.

PSO2: Use of modern technological trends in the field of embedded system for development of smart applications

Department of Civil Engineering Diploma Program

Vision of the Department

To be a **leading department** producing **competent professionals** in the field of Civil Engineering with **human values.**

Mission of the Department

M1: Providing **contextual knowledge & skills** in line with industrial trends.

M2: Promoting **effective teaching** and **learning practices** using **modern tools** and techniques.

M3: Enhancing the culture of **innovation** and **product development.**

M4: Inculcating **ethics** and **soft skills**.

Program Educational Objectives (PEOs)

PEO1: **Equip** with contextual knowledge and technical skills to solve civil engineering problems.

PEO2: **Develop** leadership qualities and human values.

PEO3: **Prepare** for lifelong learning and communication skills.

Program Outcomes

PO1. Basic and Discipline specific knowledge: Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.

PO2. Problem Analysis: Identify and analyse well-defined engineering problems using codified standard methods.

PO3. Design/ development of solutions: Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.

PO4. Engineering Tools, Experimentation and Testing: Apply modern engineering tools and appropriate technique to conduct standard tests and measurements.

PO5. Engineering practices for society, sustainability and environment: Apply appropriate technology in context of society, sustainability, environment and ethical practices.

PO6. Project Management: Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.

PO7. Life Long Learning: Ability to analyse individual needs and engage in updating in the context of technological changes.

Program Specific Outcome's (PSO's)

PSO1: Develop proficiency in handling infrastructure projects related to construction and restoration adopting sustainable materials and technologies, considering environmental responsibility and resource efficiency.

PSO2: Execute effectively in multidisciplinary teams, pursue higher studies and entrepreneurship, adopting modern tools and technologies

Department of Civil Engineering B.Tech Program

Vision of the Department

To **be** a **leading department** producing **competent professionals** in the field of Civil Engineering with **human values**.

Mission of the Department

M1: **Providing contemporary knowledge** to students in line with industrial trends.

M2: **Promoting effective teaching** and **learning practices** using modern educational tools and techniques.

M3: **Promoting research environment** through training in emerging softwares and technologies.

M4: **Inculcating ethics and soft skills among students.**

Program Educational Objectives (PEOs)

PEO1: Develop **professional competency** in Civil Engineering for global acceptance in **industry**, **research** and **premier institution** of higher studies**.**

PEO2: Develop **technical skills**, enabling them to **provide intelligent solutions** to meet **industry challenges**.

PEO3: Cope-up with **challenges** of **social** and **professional** concern by use of **modern** civil engineering tools and software.

PEO4: Exhibit **leadership quality and human values.**

PEO5: Demonstrate **effective communication and lifelong learning** skills.

Program Outcomes

PO1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the **solution** of complex engineering problems.

PO2. **Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural **sciences**, and engineering sciences.

PO3. **Design / development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public **health** and safety, and the cultural, societal, and environmental considerations.

Po4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to **provide** valid conclusions.

PO5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of **the** limitations.

PO6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering **practice**.

PO7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and **environmental** contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering **practice**.

PO9. **Individual and team work:** Function effectively as an individual, and as a **member** or leader in diverse teams, and in **multidisciplinary** settings.

PO10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with **society** at large, such as, being able to comprehend and write effective reports and design **documentation**, make effective presentations, and give and receive clear instructions.

PO11. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in **multidisciplinary** environments.

PO12. **Life-long learning:** Recognize the **need** for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological Change.

Program Specific Outcome's (PSO's)

PSO1: Analyze, design and supervise Residential and Public Buildings/ structures using the knowledge of Structural, Environmental, Irrigation and Transportation Engineering.

PSO2: Execute civil engineering profession ethically and to enhance lifelong learning by adopting modern engineering tools.

PSO3: Perform ethically and professionally fostering a collaborative work culture

Department of Computer Science & Engineering

Vision of the Department

To be a leading department producing competent engineering professional in computer science and engineering with ethics and societal concerns.

Mission of the Department

M1: **Providing contemporary knowledge** to students in line with industrial trends.

M2: **Promoting Effective Teaching and Learning Practices using modern educational tools and techniques.**

M3: **Developing environment of research & development through training in emerging software and technologies.**

M4: **Inculcating ethics and soft skills among students.**

Program Educational Objectives (PEOs)

PEO1: Develop professional **competency** in Computer Science and **Engineering** for global acceptance in **industries, research** and premier institution of higher studies.

PEO2: Develop computing skills, enabling them to provide **intelligent solutions** to meet industry challenges.

PEO3: Compete with the challenges of **social and professional concern** by use of modern tools and software.

PEO4: Exhibit leadership quality and **human values.**

PEO5: Demonstrate effective communication and **lifelong learning skills.**

Program Outcomes

PO1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the **solution** of complex engineering problems.

PO2. **Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural **sciences**, and engineering sciences.

PO3. **Design / development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public **health** and safety, and the cultural, societal, and environmental considerations.

Po4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to **provide** valid conclusions.

PO5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of **the** limitations.

PO6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering **practice**.

PO7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and **environmental** contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering **practice**.

PO9. **Individual and team work:** Function effectively as an individual, and as a **member** or leader in diverse teams, and in **multidisciplinary** settings.

PO10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with **society** at large, such as, being able to comprehend and write effective reports and design **documentation**, make effective presentations, and give and receive clear instructions.

PO11. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in **multidisciplinary** environments.

PO12. **Life-long learning:** Recognize the **need** for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological Change.

Specific Outcome's (PSO's)

PSO1: Program Design/Development of Intelligent systems: Design solutions of complex engineering problems and design system components and procedure that meet the trending smart space features required in different domains.

PSO2: System verification and validation: Design robust and fault tolerant components and systems

PSO3: Collaborative work culture: Perform ethically and prodfessionally fostering a collaborative work culture

Department of Mechanical Engineering

Vision of the Department

To be a **globally acclaimed department** producing competent professionals in the field of Mechanical Engineering with **human values**.

Mission of the Department

M1: **Providing contextual knowledge** of science and engineering in coordinated and integrated manner.

M2: **Promoting effective teaching and learning practices** supported by modern educational tools and techniques.

M3: **Promoting research environment, use of simulation and automation.**

M4: **Inculcating ethics, soft skills** and **lifelong learning** among students.

Program Educational Objectives (PEOs)

PEO1: **Develop professional competency** in Mechanical Engineering for **global acceptance** in industry, research and premier institutions of higher studies.

PEO2: **Develop technical skills**, enabling students to meet industry challenges.

PEO3: **Cope** up with **challenges of social** and **professional concern**.

PEO4: **Exhibit leadership quality** and **human values**

PEO5: **Demonstrate effective communication** and **lifelong learning** skills.

Program Outcomes

PO1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the **solution** of complex engineering problems.

PO2. **Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural **sciences**, and engineering sciences.

PO3. **Design / development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public **health** and safety, and the cultural, societal, and environmental considerations.

Po4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to **provide** valid conclusions.

PO5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of **the** limitations.

PO6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering **practice**.

PO7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and **environmental** contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering **practice**.

PO9. **Individual and team work:** Function effectively as an individual, and as a **member** or leader in diverse teams, and in **multidisciplinary** settings.

PO10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with **society** at large, such as, being able to comprehend and write effective reports and design **documentation**, make effective presentations, and give and receive clear instructions.

PO11. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in **multidisciplinary** environments.

PO12. **Life-long learning:** Recognize the **need** for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological Change.

Specific Outcome's (PSO's)

PSO1: Advance Software Tools: Develop proficiency in designing through advanced software tools related to mechanical engineering.

PSO2: Multidisciplinary Approach: Adopt Multidisciplinary Approach to solve real world industrial problem.

PSO3: Collaborative work culture: Perform ethically and professionally fostering a collaborative work culture

6. Smart sensors and their application in modern electronics.

Smart sensors integrate sensing, processing, and communication on a single chip, enabling devices to gather, interpret, and transmit data for automation and efficiency in IoT, smart cities, Industry 4.0, healthcare, and automotive systems, by combining basic sensing with microprocessors, ADCs, and communication interfaces for self-diagnosis, calibration, and digital output. They transform traditional data collection into intelligent monitoring and control, crucial for modern connected environments.

Smart Sensor Working Principle

Smart sensors work by capturing data from physical environments & changing their physical properties like speed, temperature, pressure, mass, or presence of humans into calculable electrical signals. These sensors include a Digital Motion Processor (DMP). Here a DMP is one type of microprocessor that allows the sensor to perform onboard processing of the smart sensor data like filtering noise otherwise performing different kinds of signal conditioning.

These sensors have 4 main functions measurement, configuration, verification & communication.

- Measurements are simply taken through detecting physical signals & changing them into electrical signals. So this will help in monitoring and measuring things like temperature, traffic, & industrial applications.
- Configuration function is a significant feature as it allows the smart sensor to detect position otherwise installation errors
- The verification function has different uses like nonstop supervision of sensor behavior, using a set of supervisory circuits or equipment executed within the sensor.
- Lastly, the communication feature allows the sensor to converse to the main microcontroller/ microprocessor.

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Applications

The **applications of the smart sensor** include the following.

These sensors play a key role in monitoring different industrial processes like data collecting, measurement taking & transmitting the data to centralized cloud computing platforms wherever data is collected & analyzed for different patterns. So, this collected data can be simply monitored at any time by decision-makers.

Smart sensors are used mainly for monitoring & control mechanisms in different environments like water level & food monitoring systems, smart grids, traffic monitoring & control, environmental monitoring, conserving energy in artificial lighting, monitoring of the remote system, and fault diagnostics of equipment, transport & logistics, agriculture, telecommunications, industrial applications, animal tracking, etc.

Anmol Verma (Diploma EC 1st year

7. Bluetooth and Wifi- The backbone of modern connectivity

Bluetooth and Wi-Fi are indeed the backbone of modern connectivity, but serve different roles: **Wi-Fi** provides high-speed internet access over longer distances (homes, offices) for multiple devices, while **Bluetooth** enables low-power, short-range device-to-device connections (headphones, smartwatches, file transfers). Wi-Fi handles internet networking, whereas Bluetooth manages peripheral connections, both crucial for seamless, everyday wireless interaction.

Wi-Fi: The Internet Gateway

- **Purpose:** Connecting devices to the internet and local networks (LANs).
- **Range & Speed:** Longer range and higher data speeds, suitable for streaming, browsing, and data-intensive tasks.

- **Use Cases:** Laptops, smart TVs, tablets, gaming consoles, smart home hubs.

Bluetooth: The Personal Connection

- **Purpose:** Short-range communication and data exchange between nearby devices.
- **Power & Range:** Low power consumption (especially Bluetooth LE), ideal for battery-powered devices; shorter range (around 30 feet).
- **Use Cases:** Wireless headphones, speakers, keyboards, mice, smartwatches, fitness trackers, car hands-free systems.

How They Work Together

- **Complementary Roles:** Your phone uses Wi-Fi to access the internet but Bluetooth to connect to your earbuds.
- **IoT Backbone:** Together, they form the foundation for smart homes and the Internet of Things (IoT), with Wi-Fi connecting to the cloud and Bluetooth managing local device interactions.

In essence, Wi-Fi brings the internet to your space, while Bluetooth connects the devices within it, making them indispensable partners in our wireless world. contexts. These scriptures have influenced the present and will also touch the future. Reading and writing should not become extinct like endangered creatures. These practises must be preserved and passed along and in the long run, they might be able to safeguard the future generation.

Vaibhav Singh (Diploma EC 1ˢᵗ year)

8. Smart Home Automation with voice control

automation plays a key role in human life. Home automation allows us to control household electrical appliances like light, door, fan, AC etc. It also provides home security and emergency system to be activated. Home automation not only refers to reduce human efforts but also energy efficiency and time saving. The main objective of home automation and security is to help handicapped and old aged people who will enable them to control home

This project put forwards the implementation of home automation and security system using Arduino microprocessor and Android smartphone. Home appliances are connected to the microprocessor and communication is established between the Arduino and Android mobile device or tablet via Bluetooth module. We would develop an authentication to the system for authorized person to access home appliances. The device with low cost and scalable to less modification to the core is much important. It presents the design and implementation of automation system that can monitor and control home appliances via android phone or tablet

Voice controlled wireless smart home system has been presented for elderly and disabled people. The concept of
controlling home appliances using human voice is interesting. The proposed system has two main components, they are

(a) voice recognition system, and (b) wireless system. This system to control home appliances uses a voice controlled android application. By the increasing use of PC (personal computers), internet, mobile phone and wireless technology, it makes it easy for a user to remotely access and control the appliances.

A lot of research has been done and many solutions have been proposed to remotely access the home appliances. Some of them used internet, wireless technology to communicate and control home appliances, others used Bluetooth and GSM technology for controlling the home appliances.

The main aim of our system is to build a perfect companion for someone to be at home. Generally, home automation research targeted many needs like applications that provide the luxury and smart requirements while some threw light on the special needs for elderly and disabled etc. our system is a computer based system that can accept voice to direct commands and process them. The system provides us switching any device ON/OFF.

Amit Pandey (Diploma EC 1ˢᵗ year)

9. Printed circuit board- Design , fabrication and innovation

PCB design creates the blueprint (schematic, layout) for electronic circuits, fabrication turns that design into a physical board using etching, lamination, drilling, and plating, while innovations focus on AI-driven design, flexible/hybrid materials, smaller vias (laser drilling), and eco-friendly methods to create more compact, efficient, and sustainable electronics for everything from phones to satellites.

PCB Design: Blueprinting the Circuit

- **Schematic Capture:** Drawing the logical connections between components (resistors, ICs, etc.).
- **Layout:** Creating the physical board, placing components, routing copper traces, defining layers (single, double, multi-layer), and adding features like power planes.
- **Tools:** Using software like Altium Designer, KiCad, or Eagle, outputting Gerber files for manufacturing.
- **Considerations:** Material selection (FR-4, Rogers'), signal integrity, thermal management, and manufacturability (DFM checks) are crucial.

PCB Fabrication: Building the Physical Board

- **Imaging & Etching:** Transferring the design onto copper-clad laminate and etching away unwanted copper to form traces.
- **Layering:** Laminating multiple layers (copper/substrate) together under heat and pressure.
- **Drilling & Plating:** Drilling holes for vias (connecting layers) and component leads, then plating them with copper for conductivity.
- **Finishing:** Applying solder mask (protection) and silkscreen (markings).
- **Assembly:** Soldering components onto the board (often done separately).

Innovation in PCBs: Pushing Boundaries

- **AI & Machine Learning:** Optimizing layouts and reducing design time/errors.
- **High-Density Interconnect (HDI):** Using laser drilling for micro-vias, enabling smaller, faster, and more complex boards (used in phones, advanced systems).
- **Flexible & Rigid-Flex PCBs:** Combining rigid and flexible materials for unique form factors (wearables, medical devices).
- **Eco-Friendly Processes:** Water-based etching and lead-free soldering to reduce environmental impact.
- **Advanced Materials:** Using specialized substrates (PTFE, ceramics) for high-frequency or high-speed applications (5G, aerospace)

Arpit Tripathi (Diploma EC 1ˢᵗ year)

10. Internet of things- Connecting the future

The Internet of Things (IoT) connects future by embedding sensors and software into everyday objects, creating vast networks that collect and exchange data, revolutionizing industries like smart cities, healthcare, and manufacturing through real-time insights, automation, and enhanced efficiency, enabling everything from self-adjusting thermostats to interconnected supply chains for a smarter, more responsive world, while demanding advanced security and AI integration for true autonomous operation.

How IoT Connects the Future:

- **Ubiquitous Connectivity:** Billions of devices, from wearables to industrial machines, communicate seamlessly, turning the physical world into a data-rich environment.
- **Data-Driven Intelligence:** Real-time data from sensors feeds into analytics and AI, allowing systems to learn, predict, and act autonomously, optimizing performance.

- **Automation & Efficiency:** IoT automates complex tasks, reduces manual intervention, and lowers costs in businesses and homes, as seen in automated irrigation or optimized manufacturing.
- **Enhanced Experiences:** Smart homes adjust lighting and temperature; connected cars communicate with garages; and medical devices monitor patients remotely, offering greater convenience and control.

Key Areas of Impact:

- **Smart Cities:** Manage traffic, energy, waste, and public safety more effectively.
- **Healthcare (IoMT):** Remote patient monitoring, proactive care, and improved diagnostics via connected devices.
- **Industrial IoT (IIoT):** Predictive maintenance, digital twins, and supply chain optimization in Industry 4.0.
- **Agriculture:** Precision farming with sensors for optimal water and nutrient use.

Future Trends & Technologies:

- **Edge & Cloud Computing:** Processing data closer to the source for faster decisions.
- **AI & Machine Learning:** Enabling more sophisticated autonomy and context awareness.
- **Digital Twins:** Virtual models mirroring physical assets for simulation and optimization.
- **Advanced Connectivity:** 5G, 6G, and satellite networks providing faster, more reliable connections.

Challenges Ahead:

- **Security & Privacy:** Protecting vast amounts of sensitive data from threats.
- **Interoperability:** Ensuring diverse devices and platforms can communicate effectively.

Gaurav Rai (Diploma EC 1ˢᵗ year)

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11. Smart Home Technology- Electronics at your fingertips

I*ndia is on the cusp of a big technology leap. Smart phones will soon control fully automated homes in smart cities. And that is just the tip of the iceberg. Read on to know how IIITH is contributing to these smart homes.*

The technology of tomorrow will have your fingers tap-dancing on your mobile phone or tablet, to *remotely* control equipment, security, and entertainment systems in your house. Fully automated-homes in connected-cities with smart power grids are set to revolutionize our lifestyle and the way we engage with devices.

If you watched the Jetsons' in the 1960s, you would have assumed that we would have Rosie the Robot, spinning around our homes in the new millennium. Instead, we have virtual assistants like Alexa and Siri, Google Assistant for remote babysitting and for controlling air conditioning and lights.

Anything you can visualize, is now being automated; from turning your lights on, first thing in the morning, to drawing the curtains, working your washing machine and the coffeemaker that brews your morning cup of cheer. Researchers like Prof. Vishal Garg, Head, Center for IT in Building Science at IIITH are now scaling it up to the level of the whole house and front-lining the discussion on residential energy efficiency and demand response.

Smart energy home cuts your power bill

Research has revealed that about 25-30% energy saving is possible in a Smart Energy Home. But how do you quantify the benefits? A smart energy home achieves operational energy efficiency by monitoring consumption, providing feedback on when to operate your energy-consuming devices and being demand response ready. Demand response (DR) is broadly defined as a measure for reducing energy load in response to supply constraints, generally during periods of peak demand.

Energy saving or cost saving can be achieved in two ways. For example, tech pundits will tell you that an efficient set point for an air-conditioner is at 26 degrees Celsius. For running shiftable loads such as your washing machine or charging your electric vehicle, a differential tariff structure based on time of the day will result in cost saving, by shifting some of the loads from a higher to lower tariff time slot.

Why now?

Like most sectors, the Power transmission grid is also moving towards digitization, thus making it essential for its end nodes i.e., the homes to be smart. Power generation is increasingly getting decarbonized, using a combination of renewable energy sources with the traditional ones. The grid will see a lot of volatility because of the unpredictability of renewables and widespread usage of EVs (electric vehicles) in the future.

With the ever-increasing demand, smart technology will make the home as a Buffer (supplying to the grid when necessary and reducing consumption, at times of lower generation). Enter the Prosumer, consumers who will produce energy and supply to the grid. With Vehicle to grid (V2G), the homeowner will be able to tweak energy consumption and reduce load by using vehicle batteries to run home -appliances or even supply energy to the grid.

Drivers to Smart energy homes

The penetration of Internet of Things (IoT) as a technology and the seamless implementation of artificial intelligence (AI) are principal drivers for smart energy homes. Advances in IoT technology has made consumer grade technology and Do-It-Yourself kits accessible. An internet-connected home is now affordable; with efficient operation shifting to analytics, artificial intelligence to guide the consumer and chat bots to fix glitches.

Adarsh Mishra (Diploma EC 1ˢᵗ year)

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12. Microcontrollers and arduino- Revotionulizing Prototyping

What is Hardware Prototyping with Arduino?

Hardware prototyping with Arduino refers to the process of creating functional models of electronic devices or systems using Arduino boards and components. Arduino is an open-source electronics platform based on easy-to-use hardware and software. It allows professionals to design, test, and refine their ideas before moving to full-scale production. The platform's simplicity, combined with its extensive community support, makes it an ideal choice for both beginners and seasoned engineers.

Prototyping with Arduino typically involves using microcontroller boards like the Arduino Uno, Mega, or Nano, along with sensors, actuators, and other peripherals. The Arduino IDE (Integrated Development Environment) is used to write and upload code to the board, enabling it to interact with connected components. This iterative process helps developers identify design flaws, optimize performance, and validate functionality.

Key Components of Hardware Prototyping with Arduino

1.   **Arduino Boards**: The heart of any Arduino project, these microcontroller boards come in various models, each suited for specific applications. Popular options include:

   ○ **Arduino Uno**: Ideal for beginners and general-purpose projects.
      ○ **Arduino Mega**: Offers more memory and I/O pins for complex designs.
      ○ **Arduino Nano**: Compact and suitable for space-constrained applications.
      2. **Sensors**: Devices that detect changes in the environment and send data to the Arduino board. Examples include temperature sensors, motion detectors, and light sensors.

1. **Actuators**: Components that perform actions based on Arduino's output signals, such as motors, LEDs, and relays.

2. **Power Supply**: Ensures the Arduino board and connected components receive adequate power. Options include USB cables, batteries, or external power adapters.

3. **Breadboards and Jumper Wires**: Essential for creating temporary circuits during the prototyping phase.

4. **Arduino IDE**: The software platform used to write, debug, and upload code to Arduino boards.

5. **Libraries and Shields**: Pre-written code libraries and hardware add-ons that extend Arduino's functionality, such as Wi-Fi modules, motor drivers, and GPS shields.

Benefits of hardware prototyping with arduino in modern applications

Enhancing Efficiency with Arduino-Based Prototyping

Arduino streamlines the prototyping process by providing a user-friendly platform that reduces development time. Its plug-and-play nature allows professionals to quickly assemble and test circuits without the need for complex soldering or custom PCBs. Additionally, the extensive library of pre-written code and examples accelerates software development, enabling rapid iteration and refinement.

For instance, an engineer designing a smart home system can use Arduino to prototype features like automated lighting, temperature control, and security monitoring. By testing these functionalities in a controlled environment, they can identify and address potential issues before moving to production.

Cost-Effective Solutions through Arduino Prototyping

One of Arduino's most significant advantages is its affordability. Compared to traditional prototyping methods, Arduino boards and components are relatively inexpensive, making them accessible to professionals and startups with limited budgets. This cost-effectiveness extends to the software side as well, as the Arduino IDE and most libraries are free to use.

Moreover, Arduino's modular design allows developers to reuse components across multiple projects, further reducing costs. For example, a robotics engineer can repurpose sensors and actuators from a previous project to prototype a new robotic arm, saving both time and money

Nirwan Prajapati (Diploma EC 1st year)

13. Robotics and Automation

What is Robotics and Automation Engineering All about?

Automation and Robotics engineering is a field of engineering that deals with the design and creation of robots. They use computers to manipulate and process robotic actions. These robots are then used in:

Automated and Robotics engineers make use of knowledge from computer engineering, mechanical engineering, electrical engineering, biological mechanics, software engineering. But this is not all. They also use control systems and information technologies to reduce the need for human labour in factories, offices and at home. Automation and Robotics engineering has indeed been crucial to the development of humanity and certainly, this will come with great responsibilities.

Is Robotics and Automation Engineering a good career?

Yes, it is an amazing career. Job prospects are bright for aspiring robotics engineers, as every industry begin to use robotics to reap its benefits in the form of quality improvement and cost-effectiveness.

What Robotics and Automation Engineering Do?

They design experimental robotic models, design production line robots with programmable arms, maintain and upgrade older production line installations, anticipate needs in new sectors and design robots with new applications, carry out regular checks on existing robotic models. One can also do specialization in robotic field of study like Automation, Micro-Robotics, Robot Motion Planning, Signal Processing, Robot Manipulators, Artificial Intelligence, CAD, CAM, bio-cybernetics and so on.

You can now find robotic applications in varied fields such as mining, ocean exploration, nano-technology, surgery, modern warfare and space-exploration. All it requires to make a breakthrough in robotic engineering are skills like Innovative thinking, Analytical thinking, Designing vision, Creativity, Problem solving, Good mechanical skills, Disciplined attention to detail, Team spirit.

A qualified robotic engineer will find increasing employment opportunities in areas like manufacturing industries, agricultural equipment manufacturing firms, mining industry, nuclear power plants, research division of mechanical/electrical engineering firms, sea exploration, space research organizations, biomedical equipment manufacturing firms, gaming industry, to name a few.

What are the Scopes of Robotics and Automation Engineering in India & Overseas?

Robotics Engineering is considered a high-end professional career in India. There are tremendous job opportunities awaiting a candidate who has professional training in Robotics engineering. A Robotic engineer can be employed in manufacturing plants, laboratories, medical fields, mining, automation sector, life sciences, aerospace engineering, agricultural engineering, etc. If the candidate has good merit records, then they can find themselves in top profiles.

Aerospace

These types of robots category also include flying robots and the smart bard robotic seagull and Raven surveillance drone. This field has demand. The Future Scope of Robotics in aerospace is in demand.

Healthcare

Robots being utilized in the medicinal services is still not being utilized at its pinnacle. There is an incredible eventual fate of expanding the number of robots being utilized for clinical purposes performing long and demanding critical tasks and also for hospital management.

Industrial Manufacturing

These types of industrial robots consist of manipulator's arms designed and they can perform any repetitive task. They can be easily operated alongside human workers.

Disaster response

These types of robots are used for searching for survivors in the emergency, this type of robot can have the ability to track earthquakes and tsunamis and the nuclear power station. In this technology Field, your Future Scope of Robotics is brighter.

Education

This is the next generation of robotics and board category for use in home and classrooms. This technology has to include hands-on the programmable sets From Lego and 3D printers with the lesson plans, and this type of robots can be able to replace any smart teacher.

Entertainment

Robots of this type may be able to develop an emotional response. This type of robot has a comedian and can play any music easily. It can perform more functions such as filming, acting and more.

Military and security

There is a wide range of usage of artificial intelligence and robotics in the military in India. India having the fourth most powerful military in the world is continuously upgrading and research in terms of warfare and technology.

Research

These types of robots can do useful things, and they have to primarily intend to be used to help the researchers do what they can do well for research and development.

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Telepresence

These types of Telepresence robots can be allowed to have to present at a place without actually going there. And these types of robots can easily talk with people.

Private Organizations

Private organizations are slowly adopting automation and artificial trends. Currently, India is using 14% automation in workplaces which is definitely showing that the future scope of robotics engineering in India is extensive.

Investigation

Robotics can give one the scope for working in intelligence agencies. These agencies use artificial intelligence and robotics to detect hazardous materials and also help in the investigation process.

The world-wide robotics scope includes the Computing part and Vision. There are quite a lot of companies working on image processing and embedded systems and much more. They target industrial automation, automobile, consumer electronics sectors.

Given that the world-wide, like Google, are investing in Robotics technology and increase in amateur robotic enthusiasts. Most of the Open source tools are easily available and most platforms are available for robotics. They can be assured of significant development in this field in another at least 5 years. Only this would need a little push from academia and they include relevant courses and government sectors to support setting up new industries for robotics technology.

Ashutosh Tiwari

(Diploma EC 1st year)

14. Diversity and occlusions

Diversity and Inclusion (D&I) are interconnected concepts focusing on representation (Diversity) and valuing those differences (Inclusion) to create environments where everyone feels respected, heard, and empowered, driving better innovation, engagement, and business results, often expanded to **DEIB**: Diversity, Equity, Inclusion, and Belonging, emphasizing fair access and a true sense of community.

Diversity
- **What it is**: The presence of a wide range of human differences, including age, gender, ethnicity, religion, disability, sexual orientation, personality, and life experiences.
- **Focus**: Representation "Who's at the table?".

Inclusion
- **What it is**: The practice of ensuring diverse individuals feel welcomed, respected, supported, and able to fully participate and contribute.
- **Focus**: Integration and value Making sure everyone's voice is heard and integrated into the environment.

Equity (Often added as 'E' in DEI)
- **What it is**: Fair treatment, access, opportunity, and advancement for all people, removing barriers and ensuring a level playing field.
- **Focus**: Fairness and access.

Belonging (Often added as 'B' in DEIB)
- **What it is**: The deeper sense that you are accepted, secure, and part of a community, allowing you to be your authentic self.
- **Focus**: Connection and feeling valued.

Why D&I Matters
- **Innovation**: Diverse perspectives challenge norms and drive creativity.
- **Performance**: Inclusive environments boost motivation, loyalty, and better business outcomes.

- **Talent**: Attracts a wider talent pool and increases retention.
- **Engagement**: Employees who feel valued are more engaged and productive.

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The Key Difference

- **Diversity** is being invited to the party; **Inclusion** is being asked to dance and having your music played. You need both for true success; diversity without inclusion feels empty, while inclusion without diversity lacks rich perspectives.

Deepak Verma (Diploma CE 1ˢᵗ year)
Neeraj (B.Tech Civil 1st year)

15. Innovative technology on campus

An **innovative technology campus** is a modern educational or corporate space focused on future tech skills, bridging education with industry through hands-on training in AI, IoT, Big Data, and coding, exemplified by programs like the **Samsung Innovation Campus** in India, which provides experiential learning, industry partnerships (like with ESSCI), and placement support to create job-ready talent for the digital economy, emphasizing inclusive access and practical projects.

Key Characteristics

- **Future-Tech Focus**: Offers training in emerging technologies (AI, IoT, Big Data, Coding) relevant to the Fourth Industrial Revolution.

- **Industry-Academia Link**: Partners with tech giants (like Samsung) and skill councils (like ESSCI) to align learning with market needs.

- **Experiential Learning**: Emphasizes hands-on projects, capstones, and hackathons for practical skills, not just theory.

- **Inclusive & Accessible**: Aims to provide opportunities for underserved communities and women, promoting equitable access.

- **Holistic Development**: Includes soft skills training and job placement support for better workplace readiness.

Examples

- **Samsung Innovation Campus (India)**: A prominent example, training thousands in future tech skills through collaborations, with specific courses and

- **Prince Institute of Innovative Technology (PIIT)**: A college in India known for nurturing future leaders with strong industry ties.
- **Innovation Technology Campus (South Africa)**: Another entity providing post-matric education in technical fields.

In essence, an innovative tech campus transforms traditional learning into a dynamic environment that equips individuals with cutting-edge digital skills for the modern workforce.

Ayan Khan (Diploma CE 1ˢᵗ year)
Shivam Kumar (B.Tech Civil 1st Year)

16. My mom

There are many people that have the strongest impact in your lives. They are your role model and you want to be like them. These can be your family members, friends, or people that you just see on T.V. Whoever they might be they impacted your life because of want you learned from them. One person that had the strongest impact that made me who I am today is my mom. My mom had impacted my life and made me who I am today because she taught how to treat other how I want to be treated, don't judge other people because of their looks, and if you don't try you won't succeed. These are only the few lesson that I learned from my mom as a kid. My mom always told me that if I wanted people to give you respect I have to do the same to them. If you …*show more content*…

It is the biggest because in our society there are a lot of judgement on people today. People judge on what they only see and not what they know. There are people out there that are getting criticized because they just judge them instead of listening to what they need to hear. This lesson made me a better person because judging is not an okay thing to do. There are people who are miss judge on what they look like. People who look at a person who is wearing a scarves thinks that they are terrorist. They are mistaken by a bad group of people and now they are getting hate for a miss judgement. These people where it because they don't want to get judge of their appearance rather than their personality.

Sayyed Tarrannum (Diploma CE 1ˢᵗ year)

Kunwar Sidhant Singh (B.Tech Civil 4th Year)

17. Personality

Personality describes the unique patterns of thoughts, feelings, and behaviors that distinguish a person from others. A product of both biology and environment, it remains fairly consistent throughout life.

Examples of personality can be found in how we describe other people's traits. For instance, "She is generous, caring, and a bit of a perfectionist," or "They are loyal and protective of their friends."

It's what makes us who we are. That friend who thrives on last-minute, spontaneous adventures, that co-worker who leaves every project to the very last minuteall those characteristics and quirks are part of their personality, which influences how they think, feel, act, and interact.

The word "personality" stems from the Latin word *persona*, which refers to a theatrical mask worn by performers to play roles or disguise their identities.

Explanations for personality can focus on a variety of influences, ranging from genetic effects to the role of the environment and experience in shaping an individual's personality.

Personality Characteristics

Although there are many definitions of personality, most focus on the pattern of behaviors and characteristics that can help predict and explain a person's behavior.

What exactly makes up a personality? Traits and patterns of thought and emotion play important roles, and so do these fundamental characteristics of personality:

- **Consistency**: There is generally a recognizable order and regularity to behaviors. Essentially, people act in the same way or in similar ways in a variety of situations.
  - **Both psychological and physiological**: Personality is a psychological construct, but research suggests that it is also influenced by biological processes and needs.
  - **Affects behaviors and actions**: Personality not only influences how we move and respond in our environment, but it also *causes* us to act in certain ways.
  - **Multiple expressions**: Personality is displayed in more than just behavior. It can also be seen in our thoughts, feelings, close relationships, and other social interactions.

How Personality Develops

Our understanding of personality has shifted over time. Various thinkers have introduced different approaches and theories about personality, each taking a distinct perspective on what makes up personality and how it forms. Some theories describe how personalities are expressed, and others focus more on how personality develops.

Personality Types

Type theories suggest that there are a limited number of personality types that are related to biological influences.

One theory suggests there are four types of personality. They are:

- **Type A**: Perfectionist, impatient, competitive, work-obsessed, achievement-oriented, aggressive, stressed
- **Type B**: Low stress, even-tempered, flexible, creative, adaptable to change, patient, tendency to procrastinate
- **Type C**: Highly conscientious, perfectionist, struggles to reveal emotions (positive and negative)
- **Type D**: Worrying, sad, irritable, pessimistic, negative self-talk, avoidance of social situations, lack of self-confidence, fear of rejection, appears gloomy, hopeless

There are other popular theories of personality types such as the Myers-Briggs theory. The Myers-Briggs Personality Type Indicator identifies a personality based on where someone is on four continuums: introversion-extraversion, sensing-intuition, thinking-feeling, and judging-perceiving.

After taking a Myers-Briggs personality test, you are assigned one of 16 personality types. Examples of these personality types are:[1]

- **ISTJ**: Introverted, sensing, thinking, and judging. People with this personality type are logical and organized; they also tend to be judgmental.

- **INFP**: Introverted, intuitive, feeling, and perceiving. They tend to be idealists and sensitive to their feelings.

- **ESTJ**: Extroverted, sensing, thinking, and judging. They tend to be assertive and concerned with following the rules.
- **ENFJ**: Extroverted, intuitive, feeling, and judging. They are known as "givers" for being warm and loyal; they may also be overprotective.

Personality Tests

In addition to the MBTI, some of the most well-known personality inventories are:

- Minnesota Multiphasic Personality Inventory (MMPI)
- HEXACO Personality Inventory
- Caddell's 16PF Personality Questionnaire
- Enneagram Typology

Personality Traits

Trait theories view personality as the result of genetically based internal characteristics. One of the most prominent trait theories is the Big Five (aka five-factor) theory of personality, which suggests that personality comprises five broad dimensions. Some of the traits that are described by various trait theories include:[2]

- **Agreeable**: Cares about others, feels empathy, enjoys helping others
- **Conscientiousness**: High levels of thoughtfulness, good impulse control, goal-directed behaviors
- **Extraversion**: Excitability, sociability, talkativeness, assertiveness, and high amounts of emotional expressiveness
- **Introversion**: Quiet, reserved
- **Neuroticism**: Experiences stress and dramatic shifts in mood, feels anxious, worries about different things, gets upset easily, struggles to bounce back after stressful events
- **Openness**: Very creative, open to trying new things, focuses on tackling new challenges

Monika Sharma (Diploma CE 1ˢᵗ year)
Abhay Mishra (B.Tech CE 3rd Year)

18. Story of Dream

An Amazing Dream Adventure

Children's development and growth are greatly helped by short stories. The books they read and the characters they meet can become like friends. It's also important for children to understand

that books are a fantastic resource and good reading skill is necessary for success in their future lives. Reading also helps children with their confidence, coping with emotions, language, and learning.

For example, reading stories before bedtime can help the kids to relax. They allow them to forget about the worries of the day and indulge themselves in fantasy for a certain time. The soothing familiarity of a well-known tale and the rhyming in a picture book can help the child to relax.

The Story

I had a crazy and amazing dream adventure one night when I was asleep. In my dream, I was standing on the edge of a cliff. I wished I could be an eagle and magically transformed into one! I flew in the sky and saw every bird.

Then I heard a really loud and terrifying roar 200 metres away, but I did not feel scared and moved towards the noise. I flew between the trees and through the sticky brown tree sap. I spotted something in the fire as I got quite close, but it came closer to me. I saw a fearless dragon with sharp iron-like fangs, black blunt spikes, silver scales, and red furious eyes.

The dragon attacked me with red and yellowish-orange goo, but I managed to escape. I flew over the dragon and when I was on top of it, I turned into another dragon.

Two Dragons fighting

We fought until the dragon's fire was exhausted. Then I transformed into a huge pterodactyl. I picked up the dragon and threw him into a volcano. I couldn't even take a breath before the volcano erupted with rocks and lava came out. Sounds and screams were coming out from the volcano pit. Then something amazing happened.

The monstrous dragon had been completely transformed by the lava. This dragon was nice and had gorgeous eyes. We talked and became friends. "Do not disturb or break any of the humans," I told him. He agreed. From then, we often went flying together and raced the sky all the time. I heard a loud sound one day while we were twisting and doing somersaults.

I realised that I'd slipped out of my bed!!

I woke up and rushed towards my parents' room to tell them about my dream.

Conclusion

When kids listen to a story, they picture the characters, storyline, place, and so on. It is not the same as watching something on a screen. As the story continues, it allows children's minds to wander. Then they are free to think the tale in their minds the way they wish. It can even help kids to be more creative and make them open to new ideas.

Rahman Khan (Diploma CE 1st year)

Abhyuday Chaurasiya (B.Tech CE 3rd Year)

19. Power your career with power electronic

Power electronics is a crucial field in electrical engineering that uses semiconductor devices (like diodes, transistors) to efficiently **convert, control, and condition** electric power for various loads, managing energy flow from low-power devices (laptops) to high-power systems (electric vehicles, renewable energy grids). It's essentially about managing electrical energy to meet specific needs, transforming power from one form (AC/DC) to another (DC/AC, AC/AC, DC/DC) for optimal performance, efficiency, and reduced waste, forming the backbone of modern electrification.

Key Functions & Components

- **Conversion:** Changing power from one form to another (e.g., AC to DC in chargers, DC to AC in inverters).
- **Control:** Regulating voltage, current, and frequency for specific applications.

- **Semiconductors:** Diodes, Thyristors, MOSFETs, IGBTs are used as efficient switches.
- **Converters:** AC/DC (rectifiers), DC/AC (inverters), DC/DC (choppers), AC/AC (frequency changers).

Core Applications

- **Consumer Electronics:** Laptop/phone chargers, PC power supplies, LED lighting.
- **Transportation:** Electric vehicles (EVs), electric trains, hybrid systems, automotive electronics.
- **Renewable Energy:** Solar inverters, wind power systems, energy storage.
- **Industrial Automation:** Motor drives, industrial heating, robotics, UPS systems.
- **HVDC:** High-voltage direct current transmission.

Why It's Important

- **Efficiency:** Maximizes energy use, minimizes waste.
- **Sustainability:** Crucial for electrification and reducing carbon footprints.
- **Ubiquity:** Powers nearly all modern electronic systems, from tiny gadgets to large industrial machines.

Samarjeet Yadav (Diploma CE)
Saurabh Singh (B.Tech CE 3rd Year)

20. Simple living, High thinking

"Simplify your life" is not a directive to live a life of deprivation. You don't have to turn into an ascetic and give up on all that you enjoy. It means you stop creating complexity out of simplicity. To *keep it simple* just means you let go of things that don't matter to focus on the things that do. To you.

Yes, that isn't easy to do. Especially since the "Buy More, Save More" marketing campaigns we see everywhere are run by really clever people. We are hypnotized by the messages, unable to break free from the clutches of the consumerist culture. As a result, we buy things we don't need with money we may not have to impress people we don't care about.

Where's the fun in that?

The thing about *things*

Some of us like to be surrounded by knickknacks. We believe our statuettes, unusual candles, quirky trinkets, peculiar tchotchkes, or collections of toys or teddy bears are what define our personalities and make a space *ours.* And then there are others who consider such knickknacks a waste of space but would instead fill their shelves with shoes or electronic gadgets.

Whether you surround yourself with comic books or computers, the common thread is this: most of us simply have too much *stuff*. We are only unique in the *kinds of stuff* that we accumulate. It is true: one person's trash is another's treasure. In the process, though, we forget this basic tenet of life:

The best things in life are not really *things*.

We are living through a crisis of excess. All this clutter adds layers of complexity to our lives, causing us to lose the most precious resource of all Time!

To quote Miles Davis,
Time isn't the main thing. It's the only thing.

There is no better argument for us to keep it simple than this: you'll be trading *stuff* for *time*. That's one heck of a deal

Nikhil Mishra (Diploma CE 1st year)

Rishabh Mishra (B.Tech CE 3rd year)

21. RADAR SENSORS SUPPORT PARKING MANAGEMENT

A sensor network based on a newly developed overhead radar sensor constantly monitors parking space and reports the occupancy status of parking slots to a parking control center. What is so special about this innovation is that the software works with adaptive systems. It recognizes recurring cycles in the parking space situation for example at certain times of day or on certain days of the week. It then works: out forecasts for road users, for example concerning the expected parking space situation at their destination or alternative routes through areas with lower volumes of traffic.

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Siemens is researching the use of sensor networks in an advanced parking management solution that will hopefully counter the increasing parking space crisis in cities. The online magazine pictures of the Future reports about this solution, which will be used this spring for the first time in a pilot project in Berlin. In this concept, sensor networks collect information about the parking situation in cities. The information: is forwarded to the drivers in order to make it easier for them to find unoccupied parking spaces. In addition, the data is transmitted to a parking management center so that cities can intelligently manage their parking spaces. Because the new parking management system can

integrate a variety of sensor types and technologies, it can adapt itself to the specific requirements of every neighborhood. A new feature is a radar sensor that is installed facing downward in street lamps or on the walls of houses, from where it can determine which parking spaces are occupied.

notified if parking spaces are occupied by unauthorized individuals. In the future, the RFID solution might also enable people to pay for parking completely automatically and by the minute. The parking management system's central software always thinks ahead and recognizes when parking situations repeat themselves at certain times. ForSensor can detect several example, it navigates drivers to cars unoccupied parking spaces not only on the basis of real-time data, but also on computed forecasts. This information lets navigation systems direct drivers to areas with a greater proportion of unoccupied parking spaces before they even begin looking for a parking space. In addition, the system can suggest to drivers that they switch to public transportation at suitable locations.

When installed high up, the radar sensor can scan a larger area and thus detect several cars parked in a row. Because it also scans bicycle paths and entryways, it helps users quickly determine whether dangerously parked vehicles obstruct traffic. The fist- size sensor emits microwaves that are reflected back to it by streets and cars.

The measurement data is transmitted by mobile radio to a Nowadays, up to 30 percent of all control center, which computes traffic is produced by drivers parking space occupancy and looking for a parking space. On forwards this information to the average, drivers travel around 4.5 operators of navigation and route-kilometers to make such a planning apps, for example, as well as to the planners of parking: management systems. An integrated RFID solution also detects authorizations such as the passes for residents, taxis, handicapped people, and carsharing, electric, and delivery vehicles.

It also enables traffic control officers to be immediately search. As a result, a system that reduces parking pressures in urban areas and makes the search for parking spaces easier is not only a blessing for tired drivers, it also helps make cities safer and cleaner

Sushil Kumar Verma (B.Tech ME 1ˢᵗ year)

Ram Singh Verma (B.Tech ME 3rd year)

22. LI-FI

LIGHT-FIDELITY

Li-Fi (Light Fidelity) technology, proposed by the German physicists - Harald Haas, provides transmission of data through illumination by sending data through an LED light bulb that varies in intensity faster than the human eye can follow. Wi-Fi is useful for general wireless coverage within buildings, whereas Li-Fi is ideal for high density wireless data coverage in confined area and for relieving radio interference issues. Li-Fi provides better bandwidth, efficiency, availability and security than Wi-Fi and has already achieved blisteringly high speed in the laboratory.

Li-Fi comprises a wide range of frequencies and wavelengths, from the infrared through visible and down to the ultraviolet spectrum. It includes sub-gigabit and gigabit-class communication speeds for short, medium and long ranges, and unidirectional and bidirectional data transfer using line-of-sight or diffuse links, reflections and much more. It is not limited to LED or laser technologies or to a particular receiving technique. Li-Fi is a framework for all these providing new capabilities to current and future service, applications and end users. This brilliant idea was first showcased by Harald Haas from University of Edinburgh, UK, in his TED Global talk on VLC. He explained, Very simple, if the LED is on, you transmit digital 1; If it's off you transmit a 0.

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The LEDs can be switched ON and OFF very quickly, which gives nice opportunities for transmitting data according to Hass, the light, which he referred to as D-Light, can be used to produce data rates higher than 10 megabits per second which is much faster than our average broadband connection. Li-Fi can play a major role in relieving the heavy loads which the current wireless systems face since it adds a new and unutilized bandwidth of visible light to the currently available radio waves for data transfer. Thus it offers much larger frequency band (300 THz) compared to that available in RF communications (300 Ghz) also, more data coming through the visible spectrum could help alleviate concern that the electromagnetic waves that come with Wi-Fi could adversely affect our health. Li-Fi can be the technology for the future where data for laptops, smart phones, and tablets will be transmitted through the light in a room.

Satya Anubhav Tarai (B.Tech ME 1st Year)

Shivansh Shukla (B.Tech ME 1st Year)

23. MEMORY PALACE TECHNIQUE

The memory palace technique is based on the fact that were extremely good at remembering places we know. A Memory palace' is a metaphor for any well known place that you're able to easily visualize. It can be the inside of your home, or maybe the route you take every day to work. That familiar place will be your guide to store and recall any kind of information. The memory palace is one of the most powerful memory technique I know. It is not only effective, but also full to use and not hard to learn at all. The memory palace has been used since ancient Rome and is responsible for some quite incredible memory feats.

Everything I dreamed was lost Anything I loved was gone

Everything that was mine-was taken away....

Anything I wanted shattered me I swear-

I don't know whether it was right for me or not....

But all I believe behind everything there was you lord!

May be for one day of happiness there would be thousand days of cries..

May be I am sad today but tomorrow

I will smile....

Yes! This decision is not of my choice....

Instead is taken by almight....

hope Never fades and Faith Never dies....

That God is unseen but is always by my side

Our Destination is written by Him

And he is more Wise !

Aditya Jaiswal (B.Tech 3rd CSE year)

24. INVISIBILITY CLOAK

Introduction

This seems perfectly believable when you're reading about a fictional world filled with witches, wizards and centuries-old magic; but in the real world, such a garment would be impossible, right? Not so fast. With optical-camouflage technology the invisibility cloak is already a reality.

Optical camouflage delivers a similar experience to Harry Potter's invisibility cloak, but using it requires a slightly more complicated agreement. First, the person who wants to be invisible (let's call her person A) dons a garment that resembles a hooded raincoat. The garment is made of a special material that we will examine more closely in a moment. Next, an observer (Person B) stands before Person A at a specific location. At that location, instead of seeing Person A wearing a hooded raincoat, Person B sees right through the cloak, making Person A appear to be invisible.

If person B were viewing from a slightly different location, he would simply see Person A wearing a silver garment. Still, despite its limitations, this is a cool piece of technology. Not only that, but it's also a technology that's been around for a while.

Most augmented-reality systems require that users look through a special viewing apparatus to see a real world scene enhanced with synthesized graphics. They also require a powerful computer. Optical camouflage requires these things, as well, but it also requires several other components. Here's everything needed to make a person appear invisible:

Agarment made from highly reflective material.

A video camera

A computer

A projector

Aspecial, half-silvered mirror called a combiner.

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The complete system

Now let's put all of these components together to see how the invisibility cloak appears to make a person transparent. Once a person puts on the cloak made with the retro-reflective material, here's the sequence of events:

1) A digital video camera captures the scene behind the person wearing the cloak.

2) The computer processes the captured image & makes the calculations necessary to adjust the still image or video so it will look realistic when it is projected.

3) The projector receives the enhanced image from the computer & shines the image through a pinhole-sized opening onto the combiner.

4) The silvered half of the mirror, which is completely reflective, bounces the projected image towards the person wearing the cloak.

5) The cloak acts like a movie screen, reflecting light directly back to the source, which in this case is the mirror.

6) Light rays bouncing off of the cloak pass through the transparent part of the mirror and fall on the user's eyes. Remember that the light rays bouncing off of the cloak contain the image of the scene that exists behind the person wearing the cloak.

The person wearing the cloak appears invisible because the background scene is being displayed onto the retro-reflective material. At the same time, light rays from the rest of the world are allowed to reach the user's eye, making it seems as if an invisible person exists in an otherwise normal-looking world.

Real World Application

Pilots landing a plane would use this technology to make cockpit floors transparent. This would enable them to see the runway and the landing gear simply by glancing down. Doctors performing surgery could use optical camouflage to see through their hands and instruments to the underlying tissue Drivers backing up cars could benefit one day from optical camouflage. A quick glance backwards through a transparent rear hatch or tailgate would make it easy to know when to stop. Providing a view of the outside in windowless room is one of the more fanciful application, but one that might improve the psychological well-being of people in such environments.

Piyush Tripathi (B.Tech CSE 3rd Year)
Prashant Tiwari (B.Tech CSE 3rd Year)

25. TECHNOLOGY

Nanoscience & nanotechnology are the study & application of extremely small things & can be used across all the other science fields, such as chemistry, biology, physics, materials science and engineering. Fundamental Concepts in Nanoscience & Nanotechnology It's hard to imagine just how small nanotechnology is One nanometer is a billionth of a meter. Here are few illustrative examples:- 1) There are 25,400,000 nanometers in an inch. 2) A sheet of newspaper is about 100,000 nanometers thick 3) On a comparative scale, if a marble were a nanometers, then one meter would be the size of the earth.

Nanoscience and Nanotechnology involve the ability to see and to control individual atoms & molecules. Everything on earth is made up of atoms-the food we eat, the clothes we wear, the buildings & houses we live in, and our own bodies. But something as small as an atom is impossible to see with the naked eye. In fact, it's impossible to see with the microscopes, typically used in a high school science classes. The microscopes needed to see things at the nanoscale

Once, scientists had the right tools, such as the scanning tunneling Microscope (STM) and the Atomic Force Microscope (AFM), the age of nanotechnology was born. Although modern nanoscience & nanotechnology are quite new, nanoscale materials were used for centuries. Alternate sized gold and silver particles created colours in the stained glass window of medieval churches hundreds of years ago. The artists back then just didn't know that the process they used to create these beautiful works of art actually led to change in the composition of the materials they were working with

Today's scientists and engineers are finding a wide variety of ways to deliberately make materials at the nanoscale to take advantage of their enhance properties such as higher strength, lighter weight, increased control of light spectrum & greater chemical reactivity than their large-scale counterparts.

Pragya Srivastava (B.Tech CSE 3rd year)
Sonam Sahoo (B.Tech CSE 2nd year)

26. Technical Articles

Technical content writing transcends merely filling your text with jargon and complex diagrams; it hinges on the precision and clarity of information. Accurate and digestible delivery is essential, whether it's for a medical manual that could save lives or installation instructions that could spare hours of frustration.

The quality of a technical article depends greatly on its precision and meticulous attention to detail. Any errors or ambiguities can lead to confusion and, depending on the context, serious complications.

For instance, inadequately documented software processes may result in misuse or system failures, potentially causing financial losses or operational disruptions. Therefore, the thoroughness of your writing directly influences its effectiveness and reliability.

Step1-Knowing Your Audience

Understanding your audience is crucial for successful technical communication. Knowing whether your readers are experts with deep technical knowledge or novices encountering the topic for the first-time guides how you craft your message.

For experts, employing specialized terms and providing detailed analysis is appropriate as they seek depth and precision.

Conversely, beginners require simpler explanations. They benefit from clear definitions, foundational background information, and general overviews, which help them grasp basic concepts without feeling overwhelmed.

The format, structure, and examples you choose should also be tailored to your audience's needs. Experts might prefer detailed, dense content, whereas beginners might find value in concise summaries and visual aids that enhance understanding.

Step 2: Gathering the Technical Writer's Toolkit

Step 3: Structuring The Technical Article

Structuring your article correctly is key to guiding your readers smoothly through complex technical content. Once you have your tools at the ready, we'll focus on how to organize your information:

Article Blueprint

Every great piece of technical blog writing starts with a solid plan, and that plan is your article blueprint.

What do you want your readers to learn or do after reading your piece? Once you have this in mind, jot down the major topics or questions that need answering to achieve this goal.

Arrange these points in a logical order, considering the knowledge level of your target audience. For instance, if you're explaining a complex software tool, begin with the basics before diving into more advanced features.

Use bullet points to expand each major topic into subtopics. This step-by-step breakdown not only makes the writing process smoother but also ensures that you cover all necessary aspects of the subject without overwhelming your readers.

Developing Sections

A well-structured technical article doesn't just throw facts at the reader; it guides them through a logical progression of ideas. Ensuring a smooth flow between sections is key to maintaining the reader's interest and understanding.

Introductions

Your introduction sets the stage. Begin with a brief overview of the topic to provide context, then outline what the reader can expect to learn. This preview acts like a promise to the reader, giving them a reason to keep reading.

Body Paragraphs

Each paragraph should cover a single idea, starting with a topic sentence that introduces what the paragraph will discuss. Follow this with detailed information, explanations, or data to back up your point.

Use transitions like "Furthermore," "However," or "For example," to link paragraphs and maintain a natural flow of ideas. If you're describing a process or a sequence of actions, use numbered steps or bullet points to enhance clarity.

Step 4: Mastering the Tone of Technical Writing

Mastering the tone of your writing makes your technical writing both accessible and engaging. Moving forward, we'll refine our focus on the nuances of language and style:

Using Storytelling

Storytelling might not be the first technique that comes to mind for technical writing, but it's a powerful tool to engage and connect with your readers. Integrating narrative elements can transform even the driest technical content into something relatable and memorable.

How to Incorporate Storytelling
Contextualize Problems

Start by presenting a problem that your readers might face. Then, guide them through the steps to solve this problem using your technical content. This not only holds their interest but also makes your instructions more practical.

Use Mini-Case Studies

Share short, real-life examples of how individuals or companies have successfully implemented a technology or method you're describing. This not only validates your information but also adds an element of narrative.

Approaches to Explain Difficult Concepts

Complex technical concepts can be a barrier to understanding. Using metaphors and analogies is a brilliant way to bridge this gap, translating complexity into everyday language.

For example, explaining a computer's operating system as a "city's infrastructure"where data flows like traffic, controlled by rules and facilitated by various servicescan help non-technical readers understand its complexity and function. standing of tone, we'll also look at the importance of form:

Step 5: Ensuring Proper Form and Tone for Technical Articles

This step ensures that your tech articles not only sound right but also meet professional standards of presentation and clarity. As we build on our understanding of tone, we'll also look at the importance of form:

Clarity and Conciseness

One of the golden rules of effective technical writing is keeping it clear and concise. This is especially crucial when dealing with complex subjects. Simplifying complex explanations isn't about dumbing down content; it's about making it accessible and understandable.

Aman Yadav
Diploma CE 2nd

Shivanshu Sagar
(B.Tech CSE 3rd year)

27. Happening at Department (Civil Engineering)

The Department of Civil Engineering is one of the most dynamic and vital departments in any technical institution. It plays a crucial role in shaping future engineers who contribute to nation-building through the planning, design, construction, and maintenance of infrastructure. Over the academic year, the Department of Civil Engineering witnesses a wide range of academic, technical, co-curricular, and extracurricular activities that enhance students' knowledge, skills, and professional outlook. These happenings collectively create a vibrant learning environment and reflect the department's commitment to excellence.

Academic Activities

Academic excellence remains the cornerstone of the Department of Civil Engineering. Regular classroom teaching is complemented by interactive sessions, tutorials, and problem-solving classes that strengthen students' conceptual understanding. Faculty members adopt innovative teaching methodologies such as smart classrooms, multimedia presentations, case studies, and real-life examples to make learning more effective and engaging.

Laboratory sessions form an integral part of academic activities. Well-equipped laboratories for subjects like Strength of Materials, Geotechnical Engineering, Concrete Technology, Transportation Engineering, Environmental Engineering, and Surveying enable students to gain hands-on experience. Practical experiments help students connect theoretical concepts with real-world applications, thereby enhancing their analytical and technical skills.

Workshops, Seminars, and Guest Lectures

One of the major highlights of the department is the organization of workshops, seminars, and expert lectures. Renowned academicians, industry experts, and practicing engineers are invited to share their knowledge and professional experiences. These sessions expose students to the latest developments in civil engineering, such as sustainable construction practices, green buildings, smart cities, advanced construction materials, and modern surveying techniques like GIS and remote sensing.

Such interactions motivate students to think beyond textbooks and understand the practical challenges of the profession. They also provide guidance on career opportunities, higher education, and research prospects.

Technical Events and Student Activities

The Department of Civil Engineering actively encourages students to participate in technical events such as paper presentations, model-making competitions, technical quizzes, and poster presentations. These activities help students develop confidence, teamwork, communication skills, and technical creativity.

Students often prepare innovative models related to bridges, dams, roads, water supply systems, and earthquake-resistant structures. These models demonstrate their understanding of engineering principles and their ability to apply theoretical knowledge to practical problems.

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Research and Innovation

The department also promotes research and innovation among both faculty and students. Faculty members engage in research activities, publish papers in reputed journals, and participate in conferences. Students are encouraged to take up mini-projects and final-year projects on contemporary issues such as sustainable development, waste management, renewable materials, and disaster-resistant infrastructure.

This research-oriented approach nurtures a scientific temperament and problem-solving attitude among students, preparing them for higher studies and professional challenges.

Cultural, Social, and Extension Activities

Apart from academics, the Department of Civil Engineering actively participates in cultural and social activities organized by the institution. Students showcase their talents in cultural programs, technical fests, and sports events, ensuring their overall personality development.

The department also contributes to social responsibility through activities such as cleanliness drives, awareness programs on water conservation, environmental protection, and road safety. These initiatives instill ethical values and a sense of responsibility towards society among students.

Achievements and Future Vision

The department takes pride in the achievements of its students and faculty. Students excel in university examinations, secure placements in reputed organizations, and pursue higher studies in prestigious institutions. Faculty achievements in teaching, research, and professional development further strengthen the department's reputation.

Looking ahead, the Department of Civil Engineering aims to continuously upgrade its curriculum, laboratory facilities, and teaching-learning practices. Emphasis is being placed on sustainable engineering, digital tools, interdisciplinary learning, and industry collaboration to meet the evolving demands of the civil engineering profession.

Conclusion

In conclusion, the Department of Civil Engineering is a hub of academic excellence, technical innovation, and holistic development. The various happenings throughout the year reflect its dedication to producing competent, ethical, and socially responsible engineers. Through a balanced blend of academics, practical exposure, research, and extracurricular activities, the department prepares students to face the challenges of the modern world and contribute effectively to the development of society and the nation.

Punit kumar Chaturvedi
Diploma CE 2nd year

28. Poetry

If

If you can keep your head when all about you Are losing theirs and blaming it on you;
If you can trust yourself when all men doubt you, But make allowance for their doubting too:
If you can wait and not be tired by waiting, Or, being lied about, don't deal in lies, Or being hated don't give way to hating, And yet don't look too good, nor talk too wise;

If you can dream - and not make dreams your master; If you can think - and not make thoughts your aim, If you can meet with Triumph and Disaster And treat those two impostors just the same:.

If you can bear to hear the truth you've spoken Twisted by knaves to make a trap for fools, Or watch the things you gave your life to, broken, And stoop and build' em up with worn-out tools;
If you can make one heap of all your winnings And risk it on one turn of pitch-and-toss, And lose, and start again at your beginnings, And never breathe a word about your loss:

If you can force your heart and nerve and sinew To serve your turn long after they are gone, And so hold on when there is nothing in you Except the Will which says to them: "Hold on!"

If you can talk with crowds and keep your virtue, Or walk with Kings - nor lose the common touch, If neither foes nor loving friends can hurt you,

If all men count with you, but none too much: If you can fill the unforgiving minute With sixty seconds' worth of distance run, Yours is the Earth and everything that's in it, And - which is more - you'll be a Man, my son!

Mohd. Sadiq Khan
Diploma CE 2nd year

Shubham Mishra
(B.Tech ME 2nd year)

29. Non-Technical Articles- Control your temper

There once was a little boy who had a very bad temper. His father decided to hand him a bag of nails and said that every time the boy lost his temper, he had to hammer a nail into the fence. On the first day, the boy hammered 37 nails into that fence. The boy gradually began to control his temper over the next few weeks, and the number of nails he was hammering into the fence slowly decreased. He discovered it was easier to control his temper than to hammer those nails into the fence. Finally, the day came when the boy didn't lose his temper at all. He told his father the news and the father suggested that the boy should now pull out a nail every day he kept his temper under control. The days passed and the young boy was finally able to tell his father that all the nails were gone. The father took his son by the hand and led him to the fence.

"You have done well, my son, but look at the holes in the fence. The fence will never be the same. When you say things in anger, they leave a scar just like this one. You can put a knife in a man and draw it out. It won't matter how many times you say I'm sorry, the wound is still there."

Moral of the story: Control your anger, and don't say things to people in the heat of the moment, that you may later regret. Some things in life, you are unable to take back.

Anuj Ray
Diploma CE 2nd year

Anshuman Pathak
(B.Tech ME 2nd year)

30. Alumni success story

Alumni success is more than a collection of impressive resumes; it is the ultimate testament to an educational institution's quality, serving as a living legacy that bridges academic preparation with real-world impact. The achievements of former students across business, science, technology, the arts, and public service act as a mirror reflecting the core values, resilience, and skills fostered during their formative years.

A Catalyst for Institutional Reputation

A robust alumni network is a crucial asset that elevates an institution's status, moving beyond brochures and rankings to provide tangible proof of educational excellence. Successful alumni serve as brand ambassadors, validating the school's curriculum and pedagogy. This, in turn, boosts the reputation of the alma mater, attracting prospective students and stakeholders, and strengthening the institution's standing in academic and professional communities.

Inspiring the Next Generation

Perhaps the most significant value of alumni success lies in its ability to inspire. When alumni return to share their journeysincluding challenges, setbacks, and triumphsthey provide relatable role models for current students. These stories prove that success is not a linear path but a, often turbulent, journey of persistence, which gives students a clearer, more realistic vision of their own future possibilities.

Driving Innovation and Impact

Alumni from leading institutions are frequently at the forefront of their fields, launching startups, pioneering technologies, and driving social change. Their ability to innovateoften stemming from a, nurtured in schoolleads to significant contributions in sectors like artificial intelligence, biotechnology, and entrepreneurship. Whether it is developing a new technology or disrupting an industry, these individuals transform academic knowledge into practical, world-changing results.

The Power of "Giving Back"

Alumni success is not just about individual accomplishment; it is also about the continued, active engagement with their alma mater. This "giving back" takes many forms, including mentoring current students, offering internships, providing career guidance, and contributing to, or, in school infrastructure. By facilitating these connections, alumni help build a supportive,, community that ensures the next generation of graduates is equally, if not more, successful. In conclusion, alumni success is the ultimate measure of an educational institution's enduring influence. It is a, partnership that, continues long after graduation, creating a cycle of growth that benefits, not only the individual alumni but also the institution and society at large.

Vikas Kasaudhan
Diploma CE 2nd year
Mohammad Farhan
B.Tech ME 2nd Year

31. Interview

An interview is a formal and structured conversation in which one or more persons assess the suitability, personality, skills, and knowledge of another person for a specific purpose. It plays a vital role in various fields such as education, employment, media, and research. In today's competitive world, interviews have become an essential gateway to opportunities and success.

For employers, interviews help in selecting the most suitable candidate among many applicants. For candidates, interviews provide an opportunity to present their qualifications, express their ideas, and demonstrate their strengths beyond what is written in a resume.

Types of Interviews

There are several types of interviews conducted depending on the purpose:

1. **Job Interview** Conducted to select candidates for employment.
2. **Campus Interview** Organized in educational institutions to recruit fresh graduates.
3. **Telephonic Interview** Used as an initial screening method.
4. **Video Interview** Conducted online using digital platforms.
5. **Panel Interview** Involves multiple interviewers assessing one candidate.
6. **Group Interview** Several candidates are interviewed together to judge teamwork and leadership.
7. **Personal Interview** Focuses on the candidate's background, interests, and personality.

Each type of interview aims to judge different qualities such as technical knowledge, interpersonal skills, problem-solving ability, and adaptability.

Preparation for an Interview

Proper preparation is the key to success in any interview. A candidate should first understand the nature of the interview and the expectations of the organization. Studying the company profile, job description, and required skills is essential. Preparing answers to common interview questions helps reduce anxiety and boosts confidence.

In addition to academic and technical preparation, candidates should also focus on soft skills such as communication, body language, and etiquette. Dressing formally, being punctual, and maintaining a positive attitude create a good first impression. Mock interviews and self-evaluation can further improve performance.

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Interview Etiquette and Body Language

Interview etiquette plays a crucial role in creating a favorable impression. Greeting the interviewer politely, maintaining eye contact, sitting confidently, and listening carefully are important aspects of professional behavior. Body language often speaks louder than words; therefore, candidates should avoid nervous gestures and display calmness and confidence.

Clear and honest answers, spoken in a polite tone, reflect maturity and sincerity. Even when a candidate does not know an answer, admitting it honestly is better than giving incorrect information.

Role of Communication Skills

Communication skills are one of the most important factors in an interview. The ability to express thoughts clearly and confidently helps the interviewer understand the candidate better. Effective communication includes clarity of speech, appropriate vocabulary, good listening skills, and logical presentation of ideas.

Good communication also involves responding thoughtfully to questions, asking relevant queries, and engaging positively in the conversation. Strong communication skills often compensate for minor shortcomings in technical knowledge.

Challenges Faced During Interviews

Many candidates experience nervousness, fear, or lack of confidence during interviews. Stress, unfamiliar questions, and fear of rejection can affect performance. However, these challenges can be overcome through practice, preparation, and a positive mindset. Viewing an interview as a learning experience rather than a test reduces anxiety and improves confidence.

Interviews play a significant role in shaping careers and personalities. They help individuals discover their strengths and weaknesses. Repeated interview experiences enhance confidence, communication skills, and professional behavior. For organizations, interviews ensure the selection of competent and reliable individuals, contributing to overall growth and success.

Virendra Kumar (Diploma CE 2nd Year)

Harsh Gupta (B.Tech ME 3rd Year)

32. Z Painting: A Zestful Desire

Art has always been a powerful medium of human expression, allowing emotions, ideas, and creativity to take visible form. Among the many contemporary artistic expressions, **Z Painting** emerges as a unique and vibrant style that symbolizes enthusiasm, freedom, and an unending desire to create. The very essence of Z Painting lies in its *zest* a lively energy that reflects passion, imagination, and bold experimentation.

Z Painting is not bound by rigid rules or conventional patterns. Instead, it celebrates spontaneity and emotional flow. The letter **"Z"** itself represents sharp turns, movement, and unpredictability, which are clearly visible in this form of art. The strokes in Z Painting are often dynamic and expressive, reflecting the inner emotions of the artist. Each line tells a story of courage, curiosity, and creative rebellion against monotony.

The concept of **zestful desire** plays a central role in Z Painting. It reflects the artist's intense urge to explore new dimensions, challenge limitations, and express individuality. This desire is not merely to create something beautiful but to communicate feelings that words often fail to capture. Bright colors, contrasting shades, and energetic patterns are commonly used to convey optimism, excitement, and the joy of life.

Moreover, Z Painting acts as a bridge between tradition and modernity. While it may borrow techniques from classical art forms, it transforms them through contemporary thought and personal interpretation. This fusion makes Z Painting appealing to both art enthusiasts and young learners who seek freedom in creativity. It encourages viewers to interpret art in their own way, making each experience unique and personal.

In today's fast-paced and technology-driven world, Z Painting serves as a refreshing escape. It reminds us to pause, feel, and reconnect with our inner creativity. The zestful desire behind this art form inspires individuals to embrace originality, take risks, and celebrate self-expression without fear of judgment.

In conclusion, **Z Painting: A Zestful Desire** is more than just an artistic technique it is a celebration of passion, movement, and the human spirit. It stands as a testament to the power of creativity fueled by enthusiasm and imagination, motivating artists and viewers alike to see the world through a more colorful and expressive lens.

Siddharth Kumar
Diploma CE 1st Year

Avinash Tiwari
(B.Tech ME 2nd year)

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Glimpse of events

Anugam- 2022

Independence day celabration

Glimpses of events

Pratibha- Tech cum sports events

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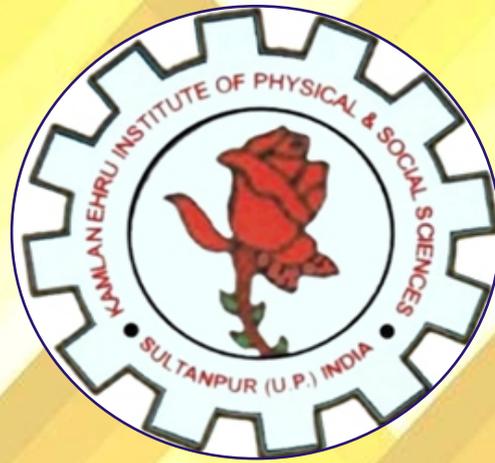
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Institute Vision

To be globally acclaimed technical institution producing competent engineering professionals with human values and societal concern.

Institute Mission

M1: Providing contemporary knowledge of Science & Engineering in coordinated and integrated manner.

M2: Promoting culture of excellence in teaching learning practices supported by modern educational tools and techniques.

M3: Enhancing design and research culture to produce industry relevant professionals.

M4: Inculcating ethics, human values and societal responsibility

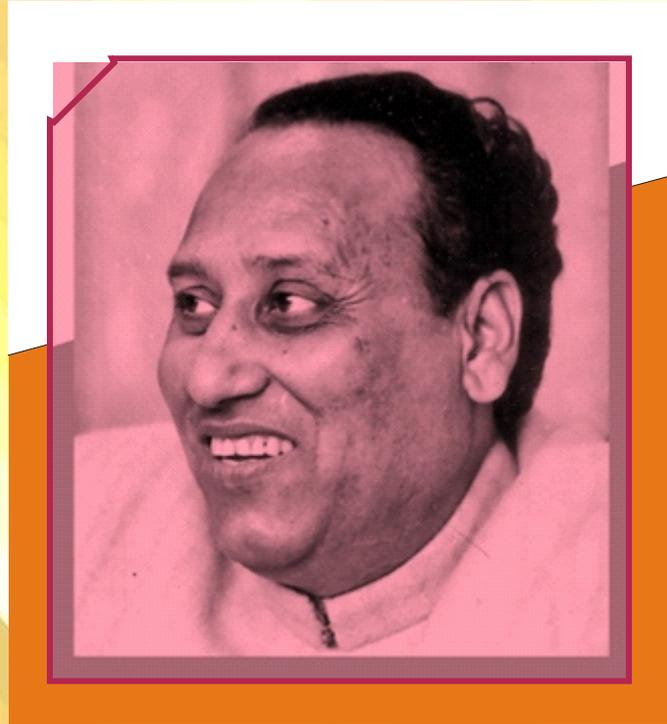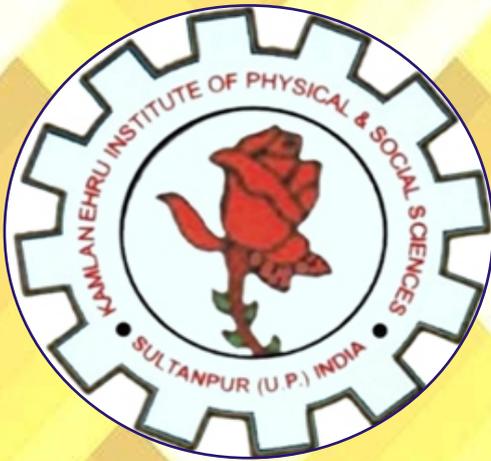## Kamla Nehru Institute of Physical & Social Sciences

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Website: www.knmt.org.in

Late Babu Kedar Nath Singh
1928-1999

Swargiya Babu Kedar Nath Singh belongs to a farmer family of a remote village 'Balua' in Sultanpur, about 65 km from District Head Quarter. Babu Ji conceived the need for establishing educational institutions, from primary level up to post graduate level with excellence and high academic standards as motto of his life to uplift the economical & educational status of the people of eastern up especially in the Awadh region, which was lagging behind in the race of development.

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