UPL

UPL UNIVERSITY
OF
SUSTAINABLE TECHNOLOGY

Rotary
Ankleshwar

Kathan
ज्ञानम् यज़ामहे।

KATHAN

E-Magazine of UPL University of sustainable Technology

ISSUE NO. 76
APRIL 2026

WAR

PEACE

VISION

- To nurture ethically skilled students for better contribution to the industry, business and the upliftment of society.

- To develop knowledgeable and professionally competent engineers to meet global challenges .

MISSION

- To provide an environment of academic excellence in Engineering and Technology through complete dedication to all round growth of students and develop sustainable solutions.

ANKLESHWAR ROTARY EDUCATION SOCIETY

Mrs. Sandra R. Shroff, Chairperson, ARES

Mr. Ashok A. Panjwani, President, ARES

Mr. Angiras H. Shukla, Secretary, ARES

Mr. Kishore S. Surti, Treasurer, ARES

EDITORIAL TEAM

Dr. Shrikant J. Wagh (Provost)

Dr. Snehal Lokhandwala (Dean Science & Sustainability)

Dr. Vinitha Vakkayil (Assistant Professor, MSH)

Mr. Shivang Ahir (Assistant Professor, ME)

Mr. Ankur Gheewala (Assistant Professor, DEE)

Ms. Prapti mahida (Lecturer, CO)

Mr. Nirmal Patel (Lecturer, CE)

Ms. Surbhi Munshi (Lecturer, MSH)

Ms. Jagruti Chauhan (Lecturer,EST)

Mr. Apurba Chakrabarty (Assistant Professor, CT)

Dr. Prakash Majee (Assistant Professor, ISR)

Mr. Parasmal Jain (Sports & Cultural Co-ordinator)

EDITORIAL MESSAGE

Engineering is not just about formulas, machines, or codes—it is about curiosity, creativity, and the courage to solve real-world problems. As we bring out this edition of our college magazine, we celebrate the spirit of innovation and the collective efforts of our students and faculty who continue to push boundaries.

This magazine is a reflection of the diverse talents within our campus. Beyond academics, it captures ideas, achievements, and perspectives that define who we are as a community. From technical insights to creative expressions, each contribution adds value and meaning to this publication.
In a rapidly evolving world, engineers play a crucial role in shaping the future. It is important that we not only strive for academic excellence but also develop critical thinking, ethical responsibility, and a commitment to society.

We congratulate everyone who contributed to making this magazine a success. May it inspire more voices, more ideas, and more innovation in the years to come.

•

Happy Reading!

STUDENT EDITORIAL MEMBERS

Kishan Kumar
B.E-4th Sem
CT

Mahek Patel
D.E Sem-6
IT

Rutvi Patel,
B.Sc Sem4
Microbiology

Abhignakumar Parmar
BE Sem-4
EE

Henin Rawat I
B.E Sem-4
CE

Zeel Solanki
Sem-4
EST

Kartik Pandey
B.E-4 Sem
CT

Drashti Sangdot
B.E Sem-4
IT

Krish Patel
B.E Sem-4
CO

Shahidkhan Pathan
BE Sem-6
EE

Shrey Chauhan
BSc Sem-6
Chemistry

Aniket Prajapati
BESem-4
ME

CONTENTS

1. Republic Day Celebrations……07
2. NCC cadet at Prime Minister's Rally , New Delhi……...09
3. Revafest 2026 ……...10
4. Abhyutthan–2026 ……...12
5. From Classroom to Clean Air: Learning Environmental monitoring Real Time……14
6. Ministry of Education's innovation Cell – Institution's Innovation Council(ICC).....…15
7. Technical articles……..17
8. Strengthening Academia – Industry collaboration……..35
9. One-day workshop on "GHG Emission Accounting"……...36
10. District Cricket Tournament……...37
11. Health & Fitness Club of UUST Organizes Yoga Shibir……38
12. Blood Donation Camp ……39
13. Alumni Meet ……41
14. Marathon 2026……42
15. Cultural and Sports activities……45
16. NSS activities……49
17. ISR events……..52
18. Students' corner……..59

Republic Day Celebrations

UPL University of Sustainable Technology, Ankleshwar, celebrated the 77th Republic Day of India with great enthusiasm and patriotic fervour at the Quadrangle near the Administrative Building. The programme began with a Guard of Honour presented by NCC Cadets to the Chief Guest, followed by the ceremonial escort to the venue. The National Flag was unfurled by the Chief Guest PP Rtn. Pankaj Mehta, after which the gathering proudly sang the National Anthem, National Flag Song, and NCC Song, creating an atmosphere filled with unity and national pride.

The celebration featured a welcome address by the Provost and a vibrant cultural programme including a solo dance by an NSS volunteer, group songs and dances by NCC cadets, and an impressive pyramid formation symbolizing discipline and teamwork.

A felicitation ceremony was organized to honour NCC Platoon Champions, NSS City representatives, best male and female sports star, and Ph.D.scholars for their remarkable achievements. The programme also included thought-provoking speeches by students and faculty, notably an address by Dr. Nilesh Badgujar, HOD-CT, on “Building India’s Future with Moral Technolology.

Inspirational addresses were delivered by Mr. Angiras Shukla, Secretary of Ankleshwar Rotary Education Society, and Mr. Ashok Panjwani, President, emphasizing education, ethics, and social responsibility. The Chief Guest PP Rtn. Pankaj Mehta motivated the students with his message on constitutional values and nation-building. The programme concluded with a heartfelt Vote of Thanks by the Registrar, followed by the soulful rendition of ‘Vande Mataram’, marking the completion of 150 glorious years of the iconic national song, which added a deeply emotional and patriotic touch to the celebration. The event ended with refreshments, leaving everyone elated with renewed pride, unity, and commitment towards the nation.

Our NCC cadet at PM Rally, New Delhi

NCC Cadet SUO Abhishek Rajbhar of the University proudly represented UPL University of Sustainable Technology and the Gujarat Directorate at the prestigious Prime Minister's Rally held on 28th January on the occasion of Republic Day. His selection for this national-level event reflects his exemplary discipline, leadership qualities, and dedication to the values of the NCC. This achievement brings great pride and honour to the University and inspires fellow cadets to strive for excellence.

Revafest 2026

Revafest 2026 was celebrated at the newly inaugurated open-air stage amidst the lush green surroundings of the UPL University of Sustainable Technology campus. The event began on an inspiring and vibrant note with the arrival of dignitaries at 5:45 PM, followed by the formal inauguration and ceremonial lighting of the lamp. The Provost, Dr. Shrikant J. Wagh, delivered the welcome address, and the UUST Parivaar warmly welcomed the honored guests.

The cultural program commenced with a graceful Prithvi Vandana performance by the students, followed by the Award Ceremony conducted by Mr. Samir Jariwala. The Annual Report was then presented by Dr. Snehal Lokhandwala, after which the Chief Guest, Shri Sukanandan J. N., addressed the audience.

The evening featured a series of engaging cultural performances including Rang Morlo by Vrushali, Roots of the Land by students, and Haule by Yuvraj. Distinguished guests Devang Thakore and Amardeepsingh Bunet shared their thoughts with the gathering, followed by an address from the President of UUST, Shri Ashok Panjwani.

The cultural showcase continued with memorable performances such as Apsara Ali by Shraddha, Human vs Nature by students, Deewana Hua Badal by faculty members, Gerua by Shwet and Vrushali, Healing the Earth by students, Ehshan Tera by Radhika and Geetanjali, and Gondhan by students, culminating in a lively Flash Mob finale.

The event concluded with a heartfelt vote of thanks delivered by the Coordinator, Ms. Monika Patel, followed by a patriotic rendition of Vande Mataram, bringing Revafest 2026 to a proud and memorable close.

Abhyutthan–2026

UPL University of Sustainable Technology proudly organized its prestigious academic awards ceremony, “Abhyutthan–2026,”on 17th March 2026 to recognize and honour the outstanding academic achievements of its students.

The ceremony celebrated the excellent performance of Diploma Engineering students in the Winter–2025 examinations across various branches, including Chemical Engineering, Electrical Engineering, Mechanical Engineering, Computer Engineering, Environmental Engineering, and Information Technology. The morning session was graced by Shri Bikas Phaujdar, Vice President at Gujarat Fluorochemicals Limited, as the Chief Guest. The afternoon session was presided over by Shri Nilay Vyas, Global Head – Safety and Health at UPL Ltd.

The event was also graced by Mr. Kishore Surti, Treasurer, ARES; Mr. B. D. Dalwadi, CEO of BEIL Infrastructure Ltd.; and Prof. Shrikant Wagh, Provost of the University. Distinguished academic leaders, including Dr. Omprakash Mahadwad, Dean of Engineering, and Dr. Alok Gautam, Dean of R&D along with Heads of Departments, faculty members, staff, parents and students were also present.

401 students were felicitated during the ceremony, receiving certificates along with prize money amounting to ₹1,89,900. Among them, 18 students achieved a perfect 10-point SPI, while 5 exceptional students were awarded gold medals for their remarkable academic performance. The gold medal recipients are:

1. Jha Komal Manoranjan (D.E. Chemical Engineering, 5th Semester)
2. Jeeson Saji Varghese (D.E. Chemical Engineering, 3rd Semester)
3. Malek Aalam Irfan (D.E. Chemical Engineering, 1st Semester)
4. Mohammad Zishan (D.E. Chemical Engineering, 1st Semester)
5. Patel Yugkumar Dilipkumar (D.E. Chemical Engineering, 1st Semester)On this occasion, the Heads of Departments, dignitaries, and guests congratulated all the achievers for their commendable success. The ceremony stood as a true reflection of dedication, perseverance, and the spirit of academic excellence.

From Classroom to Clean Air: Learning Environmental Monitoring in Real Time

Dr. J. D. Oza, Regional Officer (Ankleshwar), Gujarat Pollution Control Board (GPCB) delivered a talk on Ambient Air Quality Monitoring to the students of UPL University of Sustainable Technology, Ankleshwar on 08 January 2026.

Dr. Oza emphasizes the importance of ambient air quality monitoring, the purpose of deploying mobile monitoring vans, and how these systems are used to monitor air quality in and around industrial areas. Students also have the opportunity to visit the Environmental Monitoring Mobile Van (EMMV) equipped with a Continuous Ambient Air Quality Monitoring Station (CAAQMS).

The mobile van demonstrated real-time monitoring of ambient air pollutants, including PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, O_3, NH_3, H_2S, benzene, ethyl benzene, toluene, and xylene. This practical exposure helped students to bridge the gap between theoretical knowledge and real-world environmental monitoring practices.

Ministry of Education's Innovation Cell – Institution's Innovation Council (IIC)

Under the banner of the **Ministry of Education's Innovation Cell – Institution's Innovation Council (IIC)**, UPL University of Sustainable Technology organized an AI-focused campus event, "**AI Mind Matrix – Treasure Hunt**", on 30th January 2026

The event was open to students from all disciplines and was designed to highlight the expanding role of Artificial Intelligence through AI-inspired clues, logical puzzles, and intelligent problem-solving activities conducted across the campus. Participants enthusiastically engaged in the challenges, gaining hands-on experience of how AI-driven thinking promotes teamwork, creativity, and innovation.

The program began with a speech by Ms. Rupali Attarde(Assistant Professor-CO & IT), who explained the "Social impact of Artificial Intelligence in our daily lives". Following this, the student coordinator briefed the participants about the different rounds of the treasure hunt.

Winners – AI Mind Matrix Treasure Hunt

1st Place – BE CO | Sem 4

Drashti, Ayushi, Hetvi, Pragati

2nd Place – BE CE | Sem 6

Parth, Dhyey, Yashraj, Gagandeep

3rd Place – BE CO | Sem 6

Krisha, Akshatsinh, Sweni, Kuldeepsinh

The event was coordinated by Medhat Jaynilsinh, with co-coordinators Jay Patel, Jay Desai, Tirth Dholakia, and Meet Chauhan[B.E. CO Sem 6], under the guidance of Rupali Attarde and her IIC Team.

A big shoutout to all participants for embracing AI and making the event engaging and memorable.

Technical Article

C–H Functionalization in Organic Synthesis

C–H functionalization has emerged as a transformative strategy in modern organic chemistry, enabling the direct conversion of inert carbon–hydrogen (C–H) bonds into valuable functional groups. Traditionally, organic synthesis relied on pre-functionalized substrates (e.g., halides, organometallics), often requiring multiple steps. In contrast, C–H functionalization offers a more atom-economical and step-efficient approach by utilizing ubiquitous C–H bonds directly.

- **Significance of C–H Functionalization**
- **1. Step Economy and Atom Economy**
- C–H functionalization eliminates the need for pre-functionalization, reducing the number of synthetic steps. This leads to:

. Improved atom economy

. Reduced waste generation

. Shorter synthetic routes

- **2. Ubiquity of C–H Bonds**
- C–H bonds are among the most abundant in organic molecules. Their direct transformation allows late-stage modification of complex molecules, which is particularly valuable in drug discovery and natural product synthesis.
- **3. Site Selectivity**
- Despite the abundance of C–H bonds, modern catalytic systems enable selective activation based on:

. Electronic factors

. Steric effects

. Use of directing groups

- This allows precise functionalization at specific positions within a molecule.

- **4. Versatility of Transformations**
- C–H functionalization enables a wide variety of bond-forming reactions, including:

. C–C bond formation

. C–N, C–O, C–S, and C–X bond formation

. Oxidation, amination, arylation, and alkylation reactions

Types of C–H Functionalization

- **1. Transition Metal-Catalyzed C–H Activation**
- Transition metals such as palladium, rhodium, ruthenium, cobalt, and nickel play a key role. These reactions often proceed via:

. Cyclometallation

. Oxidative addition

. Reductive elimination

- They are widely used in cross-coupling and annulation reactions.
- **2. Directed C–H Functionalization**
- In this approach, a directing group coordinates with the metal catalyst and guides activation at a specific C–H bond, improving regioselectivity.
- **3. Undirected (Non-Directed) C–H Functionalization**
- These methods exploit inherent reactivity differences among C–H bonds and often employ radical or photocatalytic strategies.
- **4. Photoredox and Radical C–H Functionalization**
- Visible-light photoredox catalysis enables mild, sustainable C–H activation via radical intermediates, expanding the scope of functionalization.

Dr. Monak Patel
Assistant Professor
SRICT-ISR

Technical Article

The Ethanol Evolution: From First-Generation Surplus to Second-Generation Sustainability

Introduction

The global search for low-carbon, renewable transport fuels has turned bioethanol from a niche alternative into a strategically important energy carrier. Over the past few decades, ethanol production has evolved from first-generation (1G) processes that rely on surplus food-based crops to second-generation (2G) routes that emphasize non-food, lignocellulose feedstock and circular-economy thinking. This “ethanol evolution” represents a shift not only in raw materials and technology, but also in how society balances energy security, climate change, land-use competition, and long-term sustainability.

What is first-generation ethanol?

First-generation ethanol is produced primarily from sugar-rich or starch-rich crops such as sugarcane, corn, wheat, and sugar beet. In these processes, simple sugars (sucrose, glucose or starch (hydrolyzed to glucose) are fermented by yeast (typically Saccharomyces cerevisiae) into ethanol, followed by distillation and dehydration to meet fuel-grade specifications. Because these feedstocks are already edible and widely used in food and animal feed, 1G ethanol is often criticized for diverting agricultural surplus into fuel markets, thereby raising concerns over food security, land-use change, and indirect greenhouse-gas emissions.

A key feature of 1G ethanol is that it is technologically mature and relatively inexpensive, especially in countries like Brazil where sugarcane ethanol has been deployed at large scale for decades. However, the dependence on arable land and seasonal crops means that 1G systems are inherently limited in how much they can expand without encroaching on food systems or forests, which undermines their long-term sustainability credentials.

Drivers for moving beyond first-generation ethanol

Several converging pressures have driven the biofuels industry to look beyond first-generation pathways.

1).Food-versus-fuel debate Using maize, sugarcane, and other food crops for fuel raises ethical and economic concerns, especially in regions with food-insecurity or high-import dependence.

2).Land-use competition: Expanding 1G crops can push agriculture into forests or grasslands, leading to higher carbon emissions from land-use change and biodiversity loss.

3).Climate-policy requirements: Modern climate policies and life-cycle analyses demand fuels that significantly reduce greenhouse-gas emissions compared to fossil gasoline, which many 1G routes struggle to achieve when indirect effects are counted.

These factors have created strong policy and research incentives to develop second-generation ethanol, which is designed to use non-food biomass and avoid direct competition with food systems.

Defining second-generation ethanol

Second-generation (2G) ethanol is produced from lignocellulosic feedstocks, i.e., the structural biomass of plants that is rich in cellulose, hemicellulose, and lignin.

Typical 2G feedstocks include:

Agricultural residues (corn stover, wheat straw, rice husks)Forest residues (logging residues, sawdust) Energy crops (miscanthus, switchgrass, Napier grass, fast-growing trees) Industrial residues such as sugarcane bagasse andbagasse-based bagasse–trash mixturesUnlike 1G ethanol, 2G ethanol does not rely on sugars or starch that are directly consumable by humans or livestock; instead, it targets the "waste" or "by-product" fraction of biomass, which is often underutilized or burned openly. In principle, this allows 2G systems to increase ethanol output without expanding the footprint of food-oriented agriculture, improving resource efficiency and sustainability.

Technical pathway: how 2G ethanol is made:-

The core technical challenge of 2G ethanol is that plant cell-wall polysaccharides (cellulose and hemicellulose) are tightly bound with lignin and are not readily fermentable by conventional yeast. Overcoming this "recalcitrance" requires a multi-step biochemical conversion pathway:

1).Pretreatment:

The biomass is treated with physical, chemical, or physicochemical methods (e.g., steam explosion, dilute acid, alkali, or organosolv) to break open the lignocellulosic matrix and make cellulose and hemicellulose more accessible. This step generates solid cellulose-rich residue and a liquid fraction rich in hemicellulose-derived sugars (mainly pentoses such as xylose and arabinose).

2). Enzymatic hydrolysis:
Cellulose is hydrolyzed into glucose using cellulase enzyme cocktails, while hemicellulose-derived oligomers are converted into fermentable pentoses. The efficiency and cost of these enzymes are major factors determining the overall economics of 2G ethanol.

3).Fermentation:
Glucose is fermented by traditional or engineered yeast strains into ethanol; pentoses require specialized microbes or engineered strains capable of co-fermenting both glucose and xylose. Some advanced configurations integrate pentose fermentation into ethanol or use pentose-rich streams for biogas via anaerobic digestion, enhancing the overall energy balance.

4).Distillation and dehydration:
The dilute ethanol solution is concentrated by distillation and then dehydrated (often usingn molecular sieves) to reach fuel-grade anhydrous ethanol (≥99.5%), similar to 1G practice. Integrated cogeneration and by-product

5).valorization:
Residual lignin and digestate are combusted or gasified to produce heat, steam, and electricity, enabling 2G plants to be energy-self-sufficient and even generate surplus power for the grid. This cogeneration step improves the net energy ratio and reduces greenhouse-gas intensity compared with purely 1G routes.

First-generation surplus vs. second-generation sustainability

First-generation (1G) ethanol uses food crops such as sugarcane, corn, wheat, and similar starch- or sugar-rich feedstocks.

Second-generation (2G) ethanol uses non-food lignocellulosic feedstocks such as agricultural residues (corn stover, straw), forestry residues, energy crops, and industrial residues like sugarcane bagasse.

Land-use impact: 1G ethanol has direct competition with food and feed systems because it uses crops grown on arable land. 2G ethanol has lower direct competition with food, but large-scale energy-crop plantations still require land and can induce indirect land-use changes.

GHG reduction potential: 1G ethanol offers moderate greenhouse-gas savings versus gasoline, and its benefit depends strongly on indirect effects like land-use change and fertilizer use. 2G ethanol can achieve higher GHG reductions, especially when true residues are used and the process is well-integrated with efficient energy recovery.

Technology maturity: 1G ethanol is a mature, widely commercialized technology with established plants and supply chains. 2G ethanol is partially commercial but still scaling up, with ongoing improvements in pretreatment, enzymes, and fermentation. Investment and operating cost: 1G ethanol has lower capital intensity and lower enzyme or processing costs because the feedstocks are already easy to handle. 2G ethanol typically has higher capital and enzyme costs, and feedstock logistics are more complex, though costs are gradually decreasing with scale and innovation.

From a sustainability perspective, 2G ethanol better aligns with circular-economy principles by valorizing agricultural and forestry residues that would otherwise be burned, land-filled, or underused. It also offers the potential to integrate with existing 1G plants (for example, sugarcane mills), where bagasse and trash can be upgraded to second-generation ethanol or used for high-efficiency cogeneration, thereby increasing the total ethanol and electricity output per unit of biomass.

Environmental and economic sustainability of 2G ethanol.

Well-designed 2G ethanol systems can achieve significant greenhouse-gas reductions versus gasoline, particularly when:Feedstocks are true residues (e.g., corn stover, bagasse) rather than purpose-grown energy crops. The process is integrated with efficient cogeneration, using lignin and biogas to supply process energy and surplus electricity.

Advanced fermentation strains co-ferment both hexoses and pentoses, maximizing ethanol yield from the biomass. Economic analyses of integrated 1G+2G plants show that selling surplus electricity from high-pressure cogeneration turbines can improve the internal rate of return (IRR) and help offset the higher capital and operating costs of 2G units. However, feedstock logistics (collection, transport, and storage of low-density biomass), enzyme costs, and pretreatment efficiency remain key economic hurdles.
From a sustainability-policy standpoint, 2G ethanol is increasingly viewed as a “bridge” technology that can expand biofuel supply while respecting food-security and land-use constraints, provided that certification schemes and life-cycle criteria are robustly enforced. Integrated 1G+2G plants and future directions. The most practical near-term evolution of the ethanol industry is not the replacement of 1G by 2G, but their integration within the same biorefinery complex. In such integrated plants:Existing 1G fermentation and distillation units are reused, lowering capital risk.

Lignocellulosic residues (e.g., sugarcane bagasse, corn stover) are processed in parallel 2G lines, feeding additional sugars into the shared downstream train. Cogeneration systems are optimized to balance steam demand and electricity surplus, improving overall energy efficiency.

This integrated approach allows producers to leverage the maturity of 1G while gradually ramping up 2G capacity, thereby hedging risks and smoothing the transition to a more sustainable biofuel portfolio. Looking ahead, research is also exploring third- and fourth-generation routes (e.g., lignocellulosic gasification to syngas followed by fermentation, or engineered algae) that may further decouple ethanol from arable land and improve yields, but these remain at earlier stages of development.

Conclusion: toward a sustainable ethanol future

The “ethanol evolution” from first-generation surplus to second-generation sustainability reflects a broader shift in energy thinking: away from simply substituting fossil fuels with any biofuel and toward selecting fuels that are resource-efficient, low-carbon, and compatible with food systems. First-generation ethanol will likely remain important, especially in regions like Brazil where sugarcane-based systems are already highly efficient and relatively low-impact, but long-term climate and land-use goals point toward a larger share for 2G ethanol from residues and dedicated energy crops. By integrating advanced biorefinery concepts, cogeneration, and rigorous sustainability criteria, the ethanol industry can evolve from a food-based surplus-utilization model into a genuinely sustainable pillar of the low-carbon transport mix.

AI &ML in Chemical Engineering

1. Introduction:-

Artificial Intelligence (AI) and Machine Learning (ML) are transforming traditional chemical engineering by introducing data-driven methodologies alongside classical principles. AI refers to systems capable of mimicking human intelligence, while ML is a subset that enables systems to learn patterns from data without explicit. Chemical engineering processes are often nonlinear, complex, and involve multivariable interactions. Conventional modeling approaches sometimes fail to capture such complexity, making AI/ML powerful alternatives due to their flexibility, robustness, and ability to handle large datasets.

In recent years, AI has emerged as a fourth paradigm in scientific research, complementing theory, experimentation, and simulation.

2. Key AI/ML Techniques Used:-

Several AI/ML techniques are widely applied in chemical engineering:

1).Artificial Neural Networks (ANNs): Used for nonlinear modeling and prediction.

2).Support Vector Machines (SVM): Classification and regression problems.

3).Genetic Algorithms (GA): Optimization of process variables.

4).Fuzzy Logic Systems: Handling uncertainty in control systems.

5).Deep Learning (DL): Advanced pattern recognition and image/data analysis.

6).ReinforcementLearning(RL): Real-time process control These techniques enable engineers to extract meaningful insights from experimental and industrial data.

3. Applications in Chemical Engineering

3.1 Process Modeling and Optimization

AI/ML models are extensively used to simulate and optimize chemical processes such as distillation, reactors, and heat exchangers. These models can predict system behavior faster than traditional numerical methods. Improve yield and efficiency Reduce energy consumption Optimize operating conditions

AI-based optimization can increase efficiency by up to 30% and reduce costs by 20%.

3.2 Fault Detection and Predictive Maintenance.

AI systems analyze sensor data to detect anomalies and predict equipment failures before they occur. Early fault detection Reduced downtime Improved plant safety. This is particularly useful in industries like petrochemicals and pharmaceuticals.

3.3 Material and Catalyst Design

Machine learning accelerates the discovery of new materials and catalysts by predicting properties and reaction behaviours. Drug and chemical product design Catalyst optimization Structure–property relationship prediction AI enables faster development cycles compared to traditional trial-and-error methods.

3.4 Reaction Engineering and Kinetics

AI models help predict reaction rates and mechanisms, reducing experimental workload. Reaction pathway prediction Kinetic parameter estimation Process scale-up Modern systems include self-driving laboratories, where AI controls experiments autonomously.

3.5 Process Control and Automation

AI enhances traditional control strategies like PID and Model Predictive Control (MPC).Real-time adaptive control Autonomous process adjustmentSmart manufacturing (Industry 4.0) Digital twins (virtual replicas of plants) are increasingly used for monitoring and optimization.

4. Advantages of AI/ML in Chemical Engineering

- Handles complex nonlinear systems
- Reduces experimental cost and time
- Improves accuracy and prediction capability Enhances safety through predictive analysis Enables
- smart and automated plants

5. Challenges and Limitations:-

Despite its advantages, AI adoption faces several challenges:

Limited and noisy data in chemical industries Lack of interpretability (black-box models)Safety concerns in real-time applications Integration with first-principles models Chemical processes require high reliability, so combining AI with domain knowledge is essential.

6. Future Scope:-

The future of AI/ML in chemical engineering includes:

Autonomous laboratories and smart reactors. AI-driven sustainable process designIntegration with IoT and Industry 4.0 Green chemistry and carbon capture optimization Federated learning for secure industrial data sharing AI is expected to redefine how chemical engineers design, operate, and optimize processes.

7. Conclusion

Artificial Intelligence and Machine Learning are revolutionizing chemical engineering by enabling data-driven decision-making, improving efficiency, and accelerating innovation. While challenges remain, the integration of AI with traditional engineering principles offers a powerful approach to solving complex industrial problems. As technology advances, AI will play a central role in shaping the future of sustainable and intelligent chemical industries.

Dharmikkumar Patel
CE– 4th Sem
B.E

Technical Article

Agricultural Waste to Bioethanol: A Sustainable Pathway for Future Energy

Abstract

The increasing global demand for sustainable energy has led to extensive research into bioethanol production from lignocellulose biomass. Agricultural residues such as bamboo, rice husk, and sugarcane bagasse are renewable, cost-effective, and environmentally friendly feedstock. This article reviews the key processes involved in bioethanol production, including pre-treatment, hydrolysis, fermentation, and distillation. It also highlights the challenges and recent advancements in the field, emphasizing the potential of lignocellulose ethanol as a future energy source.

1. Introduction

The depletion of fossil fuels and rising environmental concerns have accelerated the need for alternative energy sources. Bioethanol is considered a promising renewable fuel due to its biodegradability and lower greenhouse gas emissions. Unlike first-generation biofuels, lignocellulose bioethanol utilizes agricultural waste, thereby avoiding competition with food resources.

Bamboo is an attractive feedstock because of its rapid growth rate, high cellulose content, and widespread availability. Its utilization not only provides energy but also helps in waste management and sustainability.

2. Structure of Lignocellulosic Biomass

Lignocellulosic biomass is composed of three major components:

Cellulose (40–50%): A linear polymer of glucose and the primarysource for ethanol production. Hemicellulose (20–30%): A branched polymer producing both pentose and hexose sugars. Lignin (15–25%): A complex aromatic polymer that provides rigidity and resistance to degradation. The presence of lignin forms a protective barrier, making biomass resistant to enzymatic attack. Therefore, pre-treatment is necessary.

3. Bioethanol Production Process

A . Pretreatment :

- Removes lignin and opens the biomass structure.
- Increases surface area for enzyme action.
- Common methods: alkali, acid, and steam explosion.

B. Hydrolysis:

- cellulose into glucose.
- Uses enzymes like cellulase.
- Can be enzymatic (preferred) or acid-basedConverts.

C.Fermentation:

- Glucose is converted into ethanol by microorganisms.
- Common organism: Saccharomyces cerevisiae.
- Produces ethanol and carbon dioxide.

D. Distillation:

- _Separates ethanol from fermentation mixture.
- Produces ~95% pure ethanol.
- Further dehydration gives fuel-grade ethanol.

Technical Article

The Role of Technology in Education

Technology has become an essential part of modern education, especially in colleges. It has transformed traditional teaching methods and made learning more accessible, interactive, and efficient. With the help of computers, smartphones, and the internet, students can now access information anytime and from anywhere.

One of the major benefits of technology is easy access to knowledge. Online resources such as e-books, educational websites, and video lectures provide students with vast information beyond textbooks. This encourages self-learning and improves understanding of subjects.

Technology also makes learning more engaging. Smart classrooms, digital presentations, and multimedia tools help explain complex topics in a simple and interesting way. In addition, online platforms allow students to communicate and collaborate with teachers and peers effectively.

Another advantage is personalized learning. Students can learn at their own pace using educational apps and software, which cater to individual needs and abilities.

However, excessive use of technology can lead to distractions and reduced concentration. Therefore, it is important to use it wisely.

In conclusion, technology plays a vital role in enhancing education and preparing students for the future.

Kamini Girase
CO- 2nd Sem
D.E

4. Challenges in Bioethanol Production

- High cost of enzymes
- Formation of inhibitors (furfural, HMF)
- Energy-intensive distillation
- Low overall efficiency
- Difficulty in industrial scale-up

5. Recent Advancements

- Genetically engineered microorganisms for higher yield
- Consolidated bioprocessing (CBP) combining steps
- Nanotechnology in enzyme immobilization
- Development of integrated bio refineries

Conclusion

Bioethanol production from agricultural waste presents a sustainable and eco-friendly alternative to fossil fuels. Although challenges such as high cost and low efficiency remain, continuous advancements in biotechnology and process engineering are improving feasibility. With proper optimization, lignocellulose bioethanol has the potential to become a major contributor to future energy needs.

References

Sun, Y., Cheng, J. (2002). Hydrolysis of lignocellulose materials.
Balat, M. (2011). Production of bioethanol from biomass.
Kumar, P. et al. (2009). Pre-treatment methods for biomass.
Humbird, D. et al. (2011). Biofuel process design and economics.

Machhi Krutik
CE– 4th Sem
B.E

Technical Article

AI-Driven Smart Grids: The Nervous System of Sustainable Cities

As the world shifts toward decentralized renewable energy, the traditional power grid—designed for one-way flow from coal or gas plants to consumers—is becoming obsolete. The AI-Driven Smart Grid represents the evolution of energy infrastructure into an intelligent, self-healing network capable of managing the complexity of 2026's energy demands.

The Technical Framework

At the heart of a smart grid lies the integration of Internet of Things (IoT) sensors and Machine Learning (ML) algorithms. These systems process "Big Data" from smart meters, weather forecasts, and historical usage patterns to perform three critical functions:

Predictive Analytics: Using Recurrent Neural Networks (RNNs) to forecast energy spikes before they happen.

Edge Computing: Processing data locally at the substation level to allow for millisecond- response times during grid fluctuations.

Automated Demand Response: Automatically dimming non-essential industrial loads or drawing power from parked Electric Vehicles (V2G - Vehicle-to-Grid) during peak hours.

Efficiency by the Numbers The transition to AI-managed infrastructure isn't just a theoretical upgrade; it provides measurable sustainability gains:

Carbon Mitigation: By optimizing the dispatch of renewable energy, AI grids can reduce carbon emissions by up to 2 gigatons globally by 2030.

Operational Reliability: AI can predict equipment failure (like transformer overheating) with 90% accuracy, preventing massive blackouts and reducing maintenance costs by 15%–30%.

Consumer Savings: Smart grids empower "prosumers" (those who both produce and consume energy via solar panels), allowing them to sell excess power back to the grid at peak prices, potentially reducing household energy bills by 20%.

Why it Matters for UPL University

For our "University of Sustainable Technology," the study of smart grids is the ultimate multidisciplinary challenge. It combines Electrical Engineering (power systems), Computer Science (AI/ML algorithms), and Environmental Science (decarbonization strategies).

Technical Note: The stability of these grids often relies on the N-1 reliability criterion, ensuring the system remains functional even if a major component fails. AI enhances this by simulating millions of failure scenarios in seconds to find the most resilient grid configuration.

Mehul Sonawala
CE– 4th Sem
D.E

Strengthening Academic-Industry Collaboration

UPL University of Sustainable Technology proudly signed a Memorandum of Understanding (MoU) with the **Savli Technology** & **Business Incubation Center** (**STBIC**), **Savli**.

This strategic collaboration aims to strengthen academia–industry linkages by fostering innovation, entrepreneurship, research collaboration, startup incubation, and skill development among students and faculty members.

The MoU represents a significant step toward industry-driven learning, technology transfer, and real-world exposure, empowering students to become future-ready professionals aligned with emerging industrial and technological needs. Together, this partnership reinforces our commitment to building a vibrant innovation ecosystem and nurturing sustainable growth through education and research.

One-day workshop on “GHG Emission Accounting ”

The IEI (India) Student Chapter (Env Division) – SRICT , organized a one-day workshop on " GHG Emission Accounting " on 9th February 2026. The workshop featured sessions delivered by industry experts, beginning with fundamentals of GHG accounting by Mr. Nirmal Singh Balli, EHS Head, Sud-Chemie India Pvt. Ltd, Vadodara . The second and third sessions on Scope 1 & 2 accounting and Scope 3 accounting were delivered by Dr. Mahesh Trivedi, GM, BEIL Ankleshwar, and Ms. Falguni Khatri, Environment Engineer, UPL Unit-1 respectively. The final session on case studies of GHG accounting was conducted by Mr. Darshan Salunke, Assistant Professor , EST Department . 45 UG students from L. D. Engineering college, Ahmedabad, GEC Surat, GEC Valsad, GEC Bharuch, SVMIT, and P. P. Savani University participated, gaining practical insights into GHG emission accounting practices.

District Cricket Tournament

Proud Moment for UUST! 🏏

The UUST Cricket Team showcased outstanding performance in the District Cricket Tournament organized by Tapovan College, Zadeshwar, Bharuch.

Displaying true sportsmanship, teamwork, and determination, the team won the Quarterfinal match and successfully advanced to the Semifinal. 👏🔥

We congratulate our talented players for representing the university with dedication and passion.

UPL University of Sustainable Technology applauds the entire team for their remarkable achievement and wishes them the very best for the upcoming matches.

Health & Fitness Club of UUST Organizes Yoga Shibir

The Health & Fitness Club of UPL University of Sustainable Technology organized a Yoga Shibir on 11th and 12th February 2026 at the UUST Boys Hostel at 6:00 AM. The programme was conducted to promote physical fitness, mental well-being, and a disciplined lifestyle among students.

The yoga sessions were led by Yoga Master Kaminiba Raj from the Gujarat State Yog Board (Under Sports, Youth & Cultural Activities Department). She guided the participants through various yogasanas, pranayama, and relaxation techniques, and explained the importance of yoga in maintaining a healthy body and mind. Students actively participated and showed great enthusiasm during the sessions.

A total of 80 students participated in the event, including 8 girls and 72 boys, reflecting strong student interest in health and fitness activities.

The event reflected the university's commitment to encouraging healthy habits and holistic development among students.

The programme was successfully coordinated by Mr. Parasmal Jain, Sports & Cultural Coordinator, and Mr. Divyajitsinh Parmar, Hostel Warden. The Yoga Shibir received a positive response and inspired students to adopt yoga as a regular part of their daily routine.

Blood Donation Camp

UPL University of Sustainable Technology successfully organized a Blood Donation Camp on 26th December, in association with Shree Kumarpal Gandhi Blood Bank, Ankleshwar. The camp commenced at 10:00 AM and was conducted smoothly with enthusiastic participation from the university community.

The event was coordinated by Mr. Parasmal Jain, Sports and Cultural Coordinator, UPL University of Sustainable Technology. Students, NSS volunteers, NCC cadets, and faculty members actively participated and contributed to the success of this noble social initiative.
70 donors successfully donated blood, comprising:

10 girl students
48 boy students
12 male faculty members.

The camp aimed to create awareness about the importance of voluntary blood donation and to inculcate a sense of social responsibility among students and staff. The active involvement and cooperation of all participants played a vital role in making the camp successful.

The organizers extend sincere gratitude to Dr. Mahesh Mistry for his valuable guidance and support throughout the activity. Heartfelt thanks are also conveyed to the UPL University management, including the Honourable Provost, Registrar, all Deans, and Heads of Departments, for their constant encouragement and support.

Special appreciation is extended to the NSS and NCC units, student volunteers, and all coordinators for their dedicated involvement. A special note of thanks is also extended to Dr. Nirali Prajapati (In-charge) and her entire medical and staff team from Shree Kumarpal Gandhi Blood Bank, Ankleshwar, for their professional support and smooth handling of the blood donation process.

Alumni Meet

The UPL University Alumni Meet 2026, organized on 4th January 2026 at UPL University of Sustainable Technology, transformed the campus into a vibrant space of nostalgia, joy, and togetherness. With over 250 alumni registered, the event was enriched by energetic and engaging activities such as Tug of War, Funtakshari, Box Cricket, Hide & Seek, and an innovative twist on Musical Chairs.

The heartfelt sharing of memories by alumni, along with inspiring messages from the Honorable President, Honorable Secretary, and Provost, added great meaning to the celebration. The warm presence and support of our faculty and staff further strengthened the spirit of unity. We sincerely thank our alumni for making this meet a memorable celebration of shared heritage, enduring connections, and lifelong bonds.

We eagerly look forward to your valuable feedback and hope to welcome you again in even greater numbers in the years to come.

4th INTERNATIONAL ANKLESHWAR MARATHON 2026

The 4th International Ankleshwar Marathon (18 January 2026) saw active participation from UPL University of Sustainable Technology. Volunteers of NCC, NSS, and hostel students ensured smooth coordination at hydration points, medal distribution, and food counters.

Around 80 students and 60 faculty/staff participated, reflecting strong unity and sportsmanship. Notable achievements included **Nirmal Mandal (B.Sc., NCC Cadet)** and **Shraddha Badgujar (Diploma CO, 2nd Year)** securing 2nd rank in the 5 km run, and **Pooja Roy (B.E. CO)** achieving 3rd rank in the 3 km run.

The event was a great success, showcasing teamwork, leadership, and the university's commitment to fitness and community engagement.

Cultural and Sports Events

STATE PARTICIPATION OF UUST STUDENTS

UPL University Student Secured 3rd Place at State Level Khel Mahakumbh JudoTournament

UPL University of Sustainable Technology proudly announces the achievement of BE-CE student Kunj Bhuva (250102101005), who secured 3rd place at the State Level Khel Mahakumbh Judo Tournament 0.3, held at Saputara, Gujarat on 9th and 10th February 2026.

BE-CE student Kunj Bhuva (250102101005) represented UPL University with great determination and sportsmanship, competing against talented participants from across the state. His achievement reflects the university's growing presence in competitive sports and the dedication of its students.

On behalf of the UPL University management, heartfelt congratulations are extended to Kunj Bhuva for this commendable performance. The university wishes him continued success in future competitions and encourages all students to actively participate in sports and represent the university at higher levels

The organizing committee also expressed heartfelt thanks to Pravin Bhai for arranging delicious food for all participants, and to Jitubhai, Supervisor , along with his entire team, for their excellent logistical support and assistance in ensuring smooth arrangements throughout the event.The Blood Donation Camp concluded successfully, leaving a positive impact and reinforcing the spirit of service, unity, and social responsibility among the university community

SPORTS AND CULTURAL ACHIEVEMENTS

Proud Moment for UPL University!
Himani Hansoti (Roll No: 250203122002) from the Department of Microbiology (ISR) proudly represented UPL University of Sustainable Technology at the State Youth Parliament Speech Competition, held on 23rd and 24th March 2026. She received a memento in recognition of her participation in this prestigious state-level event. We congratulate her on this achievement and wish her continued success in the future.

Shradha Badgujar from the Diploma – Computer Department has been selected to represent Bharuch District at the State Level Junior Basketball Championship, to be held at Rajkot from 1st –3rd April 2026. Her achievement brings great pride to UPL University of Sustainable Technology. We congratulate her and wish her all the best for an excellent performance at the championship.

SRICT- Institute of Science & Research

खेल-club **Chess Competition**

The Khel Club of the Department of Chemistry, SRICT – Institute of Science & Research, UPL University successfully organized an exciting Chess Competition with the objective of promoting strategic thinking, concentration, and sportsmanship among students. The event provided a competitive platform for participants to showcase their analytical skills, patience, and decision-making abilities through well-structured competitive rounds.8 students enthusiastically participated in the competition. The matches were conducted smoothly and witnessed healthy competition along with strong intellectual engagement among the participants. The competition successfully fulfilled its aim of encouraging strategic planning and fostering intellectual development among students. The event concluded successfully with appreciation for all participants. E-certificates will be awarded to the winners as recognition of their achievement. The Khel Club expresses sincere thanks to all participants for making the event a success.

SRICT- Institute of Science & Research

खेल-club **Volleyball tournament**

The Department of Chemistry successfully organized a Departmental Volleyball Tournament under the Khel Club activities with the objective of promoting sportsmanship, teamwork, and physical fitness among students.43 students actively participated in the tournament, forming five teams from B.Sc. and M.Sc. students. The matches were conducted in a healthy and competitive environment, encouraging discipline, coordination, and team spirit among the participants. At the conclusion of the tournament, M.Sc. Semester 4 (Unstoppable) emerged as the Winner, while B.Sc. Semester 4 (Sparten Six) secured the position of Runner-up. The event concluded successfully, fostering unity and promoting a positive sporting culture within the department.

Program details: Khel Club
Date & Time: 27-01-2026, 11:00-02:00 PM
Venue: Volleyball ground
Outcomes:

1. Enhanced teamwork and coordination among students through active participation.
2. Developed leadership qualities, discipline, and sportsmanship.
3. Improved physical fitness and mental alertness of participants.
4. Encouraged healthy competition and positive peer interaction.
5. Strengthened student engagement and overall co-curricular development.

Runner Up: B.Sc. Semester 4 (Sparten Six)

Winner: M.Sc. Semester 4 (Unstoppable)

NSS activities

On 24th December 2025, the NSS Unit of UPL University of Sustainable Technology formally adopted Vataria Village of Valia Taluka with the aim of promote holistic rural development through NSS camps and awareness activities, while strengthening the relationship between the institution and the local community. This initiative seeks to identify and address social, educational, environmental, and health-related challenges through continuous and dedicated volunteer engagement.

An interactive session on the Awareness of Treatment, Storage, and Disposal Facility (TSDF) was conducted for NSS volunteers on 08 January 2026. The session was led by Ms.Preeti Sant, Assistant Professor, EST, along with experts from BEIL Infrastructure Ltd., who highlighted the importance of scientific hazardous waste management and environmental protection.

The speakers briefed the volunteers on TSDF operations, including waste treatment, safe storage, and disposal practices, emphasising regulatory compliance and sustainability. The session encouraged active participation and helped NSS volunteers gain practical awareness of responsible waste management. More than 60 NSS Volunteers attended the program.

NSS activities

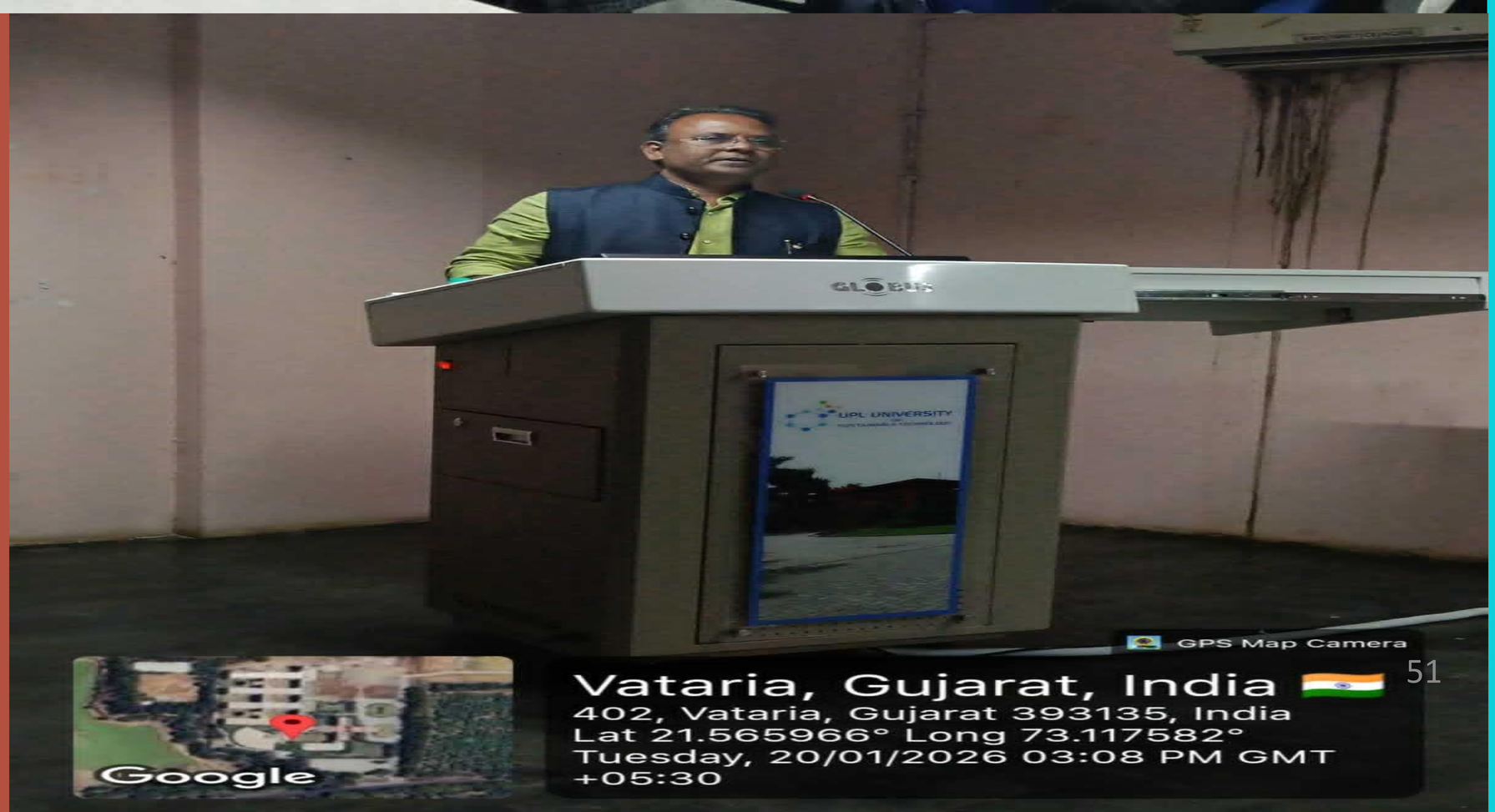
NSS volunteers of UPL University of Sustainable Technology, Vataria, visited the Electronic Waste Management Facility at BEIL Infrastructure Limited, Ankleshwar, on 09th January 2026 as part of an awareness and experiential learning program.

The visit provides students with practical exposure to scientific e-waste management practices and enhances their understanding of environmental sustainability.

During the visit, experts from BEIL explained the processes of collection, segregation, recycling, and safe disposal of electronic waste, highlighting the environmental and health impacts of improper e-waste handling. More than 55 NSS volunteers actively participated in this informative and impactful visit.

NSS activities

On 20th January 2026, the National Service Scheme (NSS) at UPL University of Sustainable Technology organised an inspiring awareness program on “One Nation, One Mission.”
The session was delivered by Mr. Vijay Shah, an active member of Pragya Pravahini, Narmada College, Bharuch. Mr Shah eloquently highlighted the richness of Indian culture and emphasised the importance of national unity, values, and collective responsibility in nation-building. The program encouraged students to reconnect with India’s cultural roots and reinforced the spirit of patriotism, unity, and social commitment. More than 100 NSS Volunteers participated in the program.



ISR event

NSS volunteers Ms. Tisha Patel and Ms. Zaiba successfully carried out an Electronic Waste Awareness Program on 23.12.25 for students of SRICT (B.E. and D.E.) and ISR (B.Sc. and M.Sc.). Special emphasis was given to the concepts of Reduce, Reuse, and Recycle, along with safe methods of e-waste disposal and the role of authorised recycling facilities. The volunteers also encouraged students to adopt sustainable practices, reduce unnecessary electronic use, and raise awareness within their communities. The program generated positive engagement among students and strengthened their awareness of sustainable and eco-friendly practices, thereby contributing to the broader goals of the National Service Scheme (NSS) in promoting environmental social responsibility.

ISR event

An online webinar was successfully organized at UPL University for the students of ISR by the National Service Scheme (NSS) unit on 12/02/2026.

The webinar on Protection of Children from Sexual Offences Act, 2012 (POCSO Act, 2012) was aimed to create awareness among students regarding child protection laws, legal provisions related to sexual offenses against children, reporting procedures, and the importance of safeguarding children's rights.

The webinar provided valuable insights and encouraged students to become responsible and aware citizens committed to ensuring child safety and social justice.

SRICT- Institute of Science & Research
Department of Chemistry
पाठ्येतर Club

Photo Identification Quiz Competition

The SRICT – Institute of Science & Research, Department of Chemistry is organizing a **Photo Identification Quiz Competition** on the theme **"Guess the Frame"**. The purpose of this competition is to enhance students' visual recognition skills, improve general knowledge, and promote interactive and enjoyable learning through images.

Program details:

Theme: Guess the Frame
Participation: Open to UG/PG Students
Date: 20/03/26
Time: 10:30 AM
Mode: Online/Offline
Venue: ISR
Outcomes:

1. Participants improve their ability to carefully observe and identify details from images.
2. Students gain knowledge about various fields such as science, history, places, personalities, logos, etc.
3. Helps participants develop the ability to think fast and choose correct answers under time constraints.
4. The quiz strengthens memory retention through visual learning techniques.
5. Participants gain confidence by actively participating and showcasing their knowledge.

Program details: Khel Club
Date & Time: 17-02-2026, 11:00 AM-12:30 PM
Venue: Sports room
Outcomes:

1. The competition enhanced students' strategic thinking and analytical abilities.
2. Participants improved their concentration, patience, and decision-making skills.
3. The event promoted healthy competition and sportsmanship among students.
4. It encouraged intellectual engagement beyond academics.
5. Students developed better problem-solving and critical thinking skills.
6. The activity strengthened student participation in co-curricular initiatives organized by the department.

After competitive rounds, the winners were declared as:

Winner (Boys): Piyush Patel
Winner (Girls): Ritika Tomar

SRICT- Institute of Science & Research
Department of Chemistry
पाठ्येतर Club

Rangoli Competition on the 'Chemistry in everyday life & Industry'

The SRICT – Institute of Science & Research, Department of Chemistry is organizing a **Rangoli Competition** on the theme **"Chemistry in Everyday Life & Industry."** The purpose of this competition is to encourage students to creatively express scientific concepts and to highlight the importance of chemistry in daily life, environmental protection, and industrial development. This activity aims to promote scientific awareness, innovation, and artistic skills among students.

Program details:

Theme: Chemistry in Everyday Life & Industry
Participation: Open to UG/PG Students
Date: 26/02/26
Time: 11:00 AM to 12:30 PM
Venue: ISR
Outcomes:

1. Students demonstrated better understanding of how chemistry is applied in daily life (soaps, medicines, fertilizers, polymers) and in industries like dyes, pharmaceuticals, petrochemicals, and food processing.
2. Students worked in teams, improving coordination, planning, and communication skills.
3. Participants explained their rangoli concepts to judges and peers, boosting confidence and communication abilities.
4. The activity integrated chemistry with art and design, encouraging creative and analytical thinking simultaneously.

SRICT- Institute of Science & Research

पाठयेतर Club

Eco-Art from Waste Competition

The SRICT – Institute of Science & Research, Department of Chemistry is organizing an **Eco-art from waste competition** as part of environmental awareness activities. The **aim of the Eco-Art from Waste activity** is to **create awareness about environmental protection** by encouraging students to **reuse waste materials creatively** and promote the principles of **Reduce, Reuse, and Recycle.**

Program details:

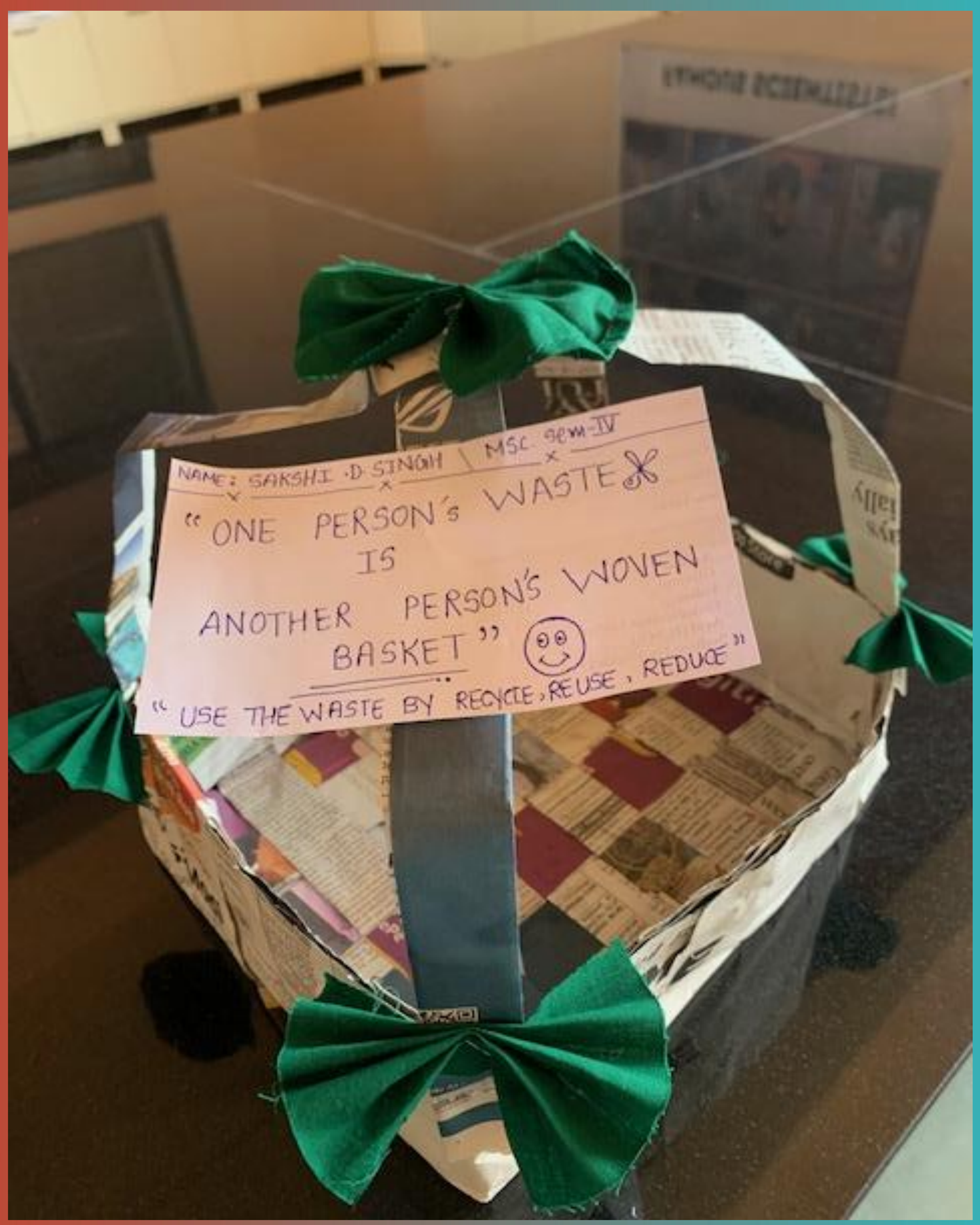
Date: 08-02-2026

Theme: Creating art using waste materials

Material: Plastic bottles, newspapers, cardboard, fabric scraps, etc.

Outcomes:

1. Students developed awareness about waste management and environmental sustainability.
2. The activity enhanced creativity and artistic skills by using discarded and waste materials.
3. Participants understood the concept of reduce, reuse, and recycle (3R) in a practical way.
4. Students learned to convert waste into useful and decorative products, promoting eco-friendly practices.
5. The competition encouraged innovation, teamwork, and problem-solving skills among students.
6. It helped inculcate environmental responsibility and ethical values towards nature.
7. The activity promoted a sustainable lifestyle mind-set among students and the campus community.


NAME: SAKSHI D SINGH
MSC SEM-IV
" ONE PERSON'S WASTE IS ANOTHER PERSON'S WOVEN BASKET "
" USE THE WASTE BY RECYCLE, REUSE, REDUCE "

STILE
DREAM
HOPE
PATIENCE
LOVE
LAUGH

GPS Map Camera
Bharuch,Gujarat,India
Phase 2, Vatu, Bharuch, Gujarat 393135, India
Lat 21.567152, Long 73.118124
Thursday, 08/01/2026 02:37 PM GMT+05:30
Note : Captured by GPS Map Camera

Students' corner

Poem

I built my dreams from fragile thread,
From quiet hopes inside my head,
They shimmered soft, they felt so far—
Like reaching for a distant star.

I walked through doubt, through restless nights,
Through silent fears and hidden fights,
Each step unsure, each road unclear,
But still, I chose to persevere.

The dream once seemed the final place,
A finish line I had to chase,
But climbing higher, I could see—
It wasn't where I'm meant to be.

Bhavya Modi
CO- 2nd Sem
D.E

Truthfulness :An Essay

Truthfulness is the greatest and most important of all humans virtues. Truthfulness means to speak the truth habitually. Ancient Indians were known for their truthfulness. We know the examples of Yudhisthira and Harischandra. Harischandra sacrificed everything for the sake of truth.

Truthfulness is important to build up a character of a man. Our society cannot exist if we all are liars.

A truthful man will never tell a lie. He always says what he means, he acts as he says. A truthful man keeps his word. So, people depend upon what he says, he has the strength of mind. He is never ready to suffer by speaking the truth. He attains a success in whatever he does. He may be poor, but he lives a peaceful and happy life because he knows he is pure in mind and is right. In fact, the words of truthful man have a great value, his words carry more weight than documents. He has a clear conscience and does not fear anybody so his mind is free from the anxiety that constantly troubles a liar. Even his enemies respect him and this respect is more important than any costly jewel. As truthfulness is a great virtue, it is a great voice.

A liar is hated by all, nobody believes him. He may gain success for a short time but in a long time he is bound to suffer. Nobody helps a liar. He cannot shine in his business. A liar does not lead a peaceful life. He is always afraid of being found out. He knows that he is not doing a great thing by telling a lie. We all know the story of a shepherd boy who used to lie. In the end he meets his death because of his lies.

It is therefore, the duty of every person to practice truthfulness from childhood.

Bhavya Modi
CO- 6th Sem
B.E

Safety Analysis of the Bhopal Gas Tragedy

Introduction: The Bhopal Gas Tragedy (1984) is one of the worst industrial disasters. It involved leakage of methyl isocyanate gas, causing massive loss of life and health hazards.

Cause: Water entered MIC tank causing exothermic reaction, increasing temperature and pressure leading to toxic gas release.

Safety Failures: Non-functional safety systems, poor maintenance, lack of training, and absence of emergency preparedness.

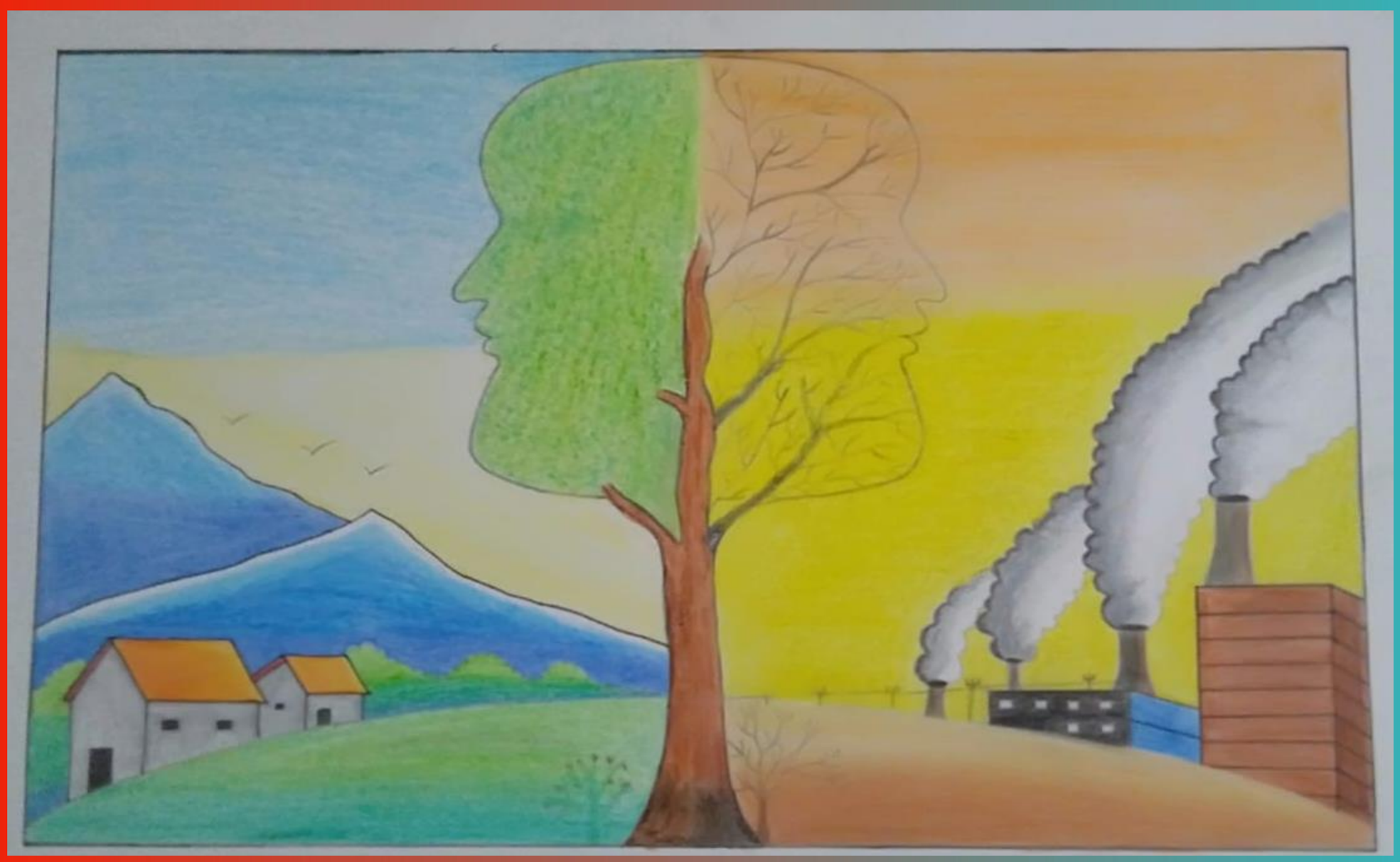
Impact: Thousands of deaths, long-term health issues, and environmental contamination.

Lessons: Importance of process safety management, hazard identification, maintenance, and safety culture.

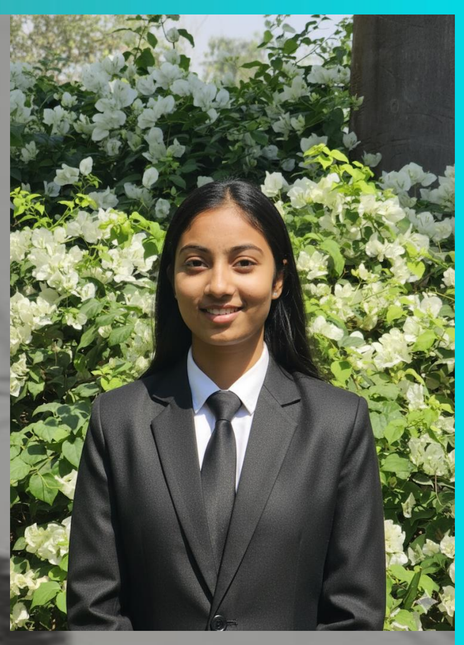
Conclusion: Industrial safety must be strictly implemented to prevent such disasters.

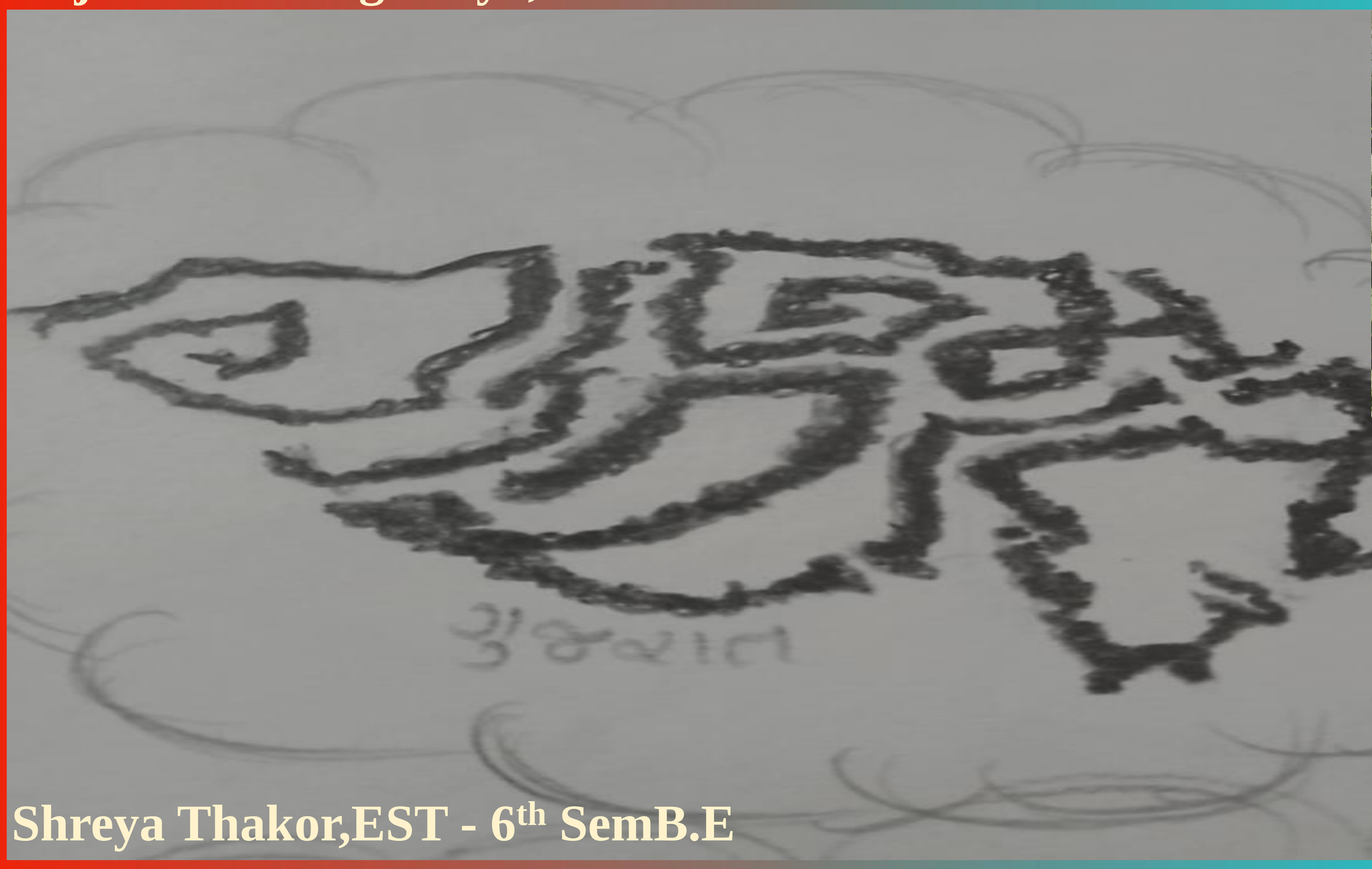
Dharmikkumar Patel
CE– 4th Sem
B.E

CREATIVE EXPRESSIONS



Najibafatema Aghariya, CO-4th SemD.E



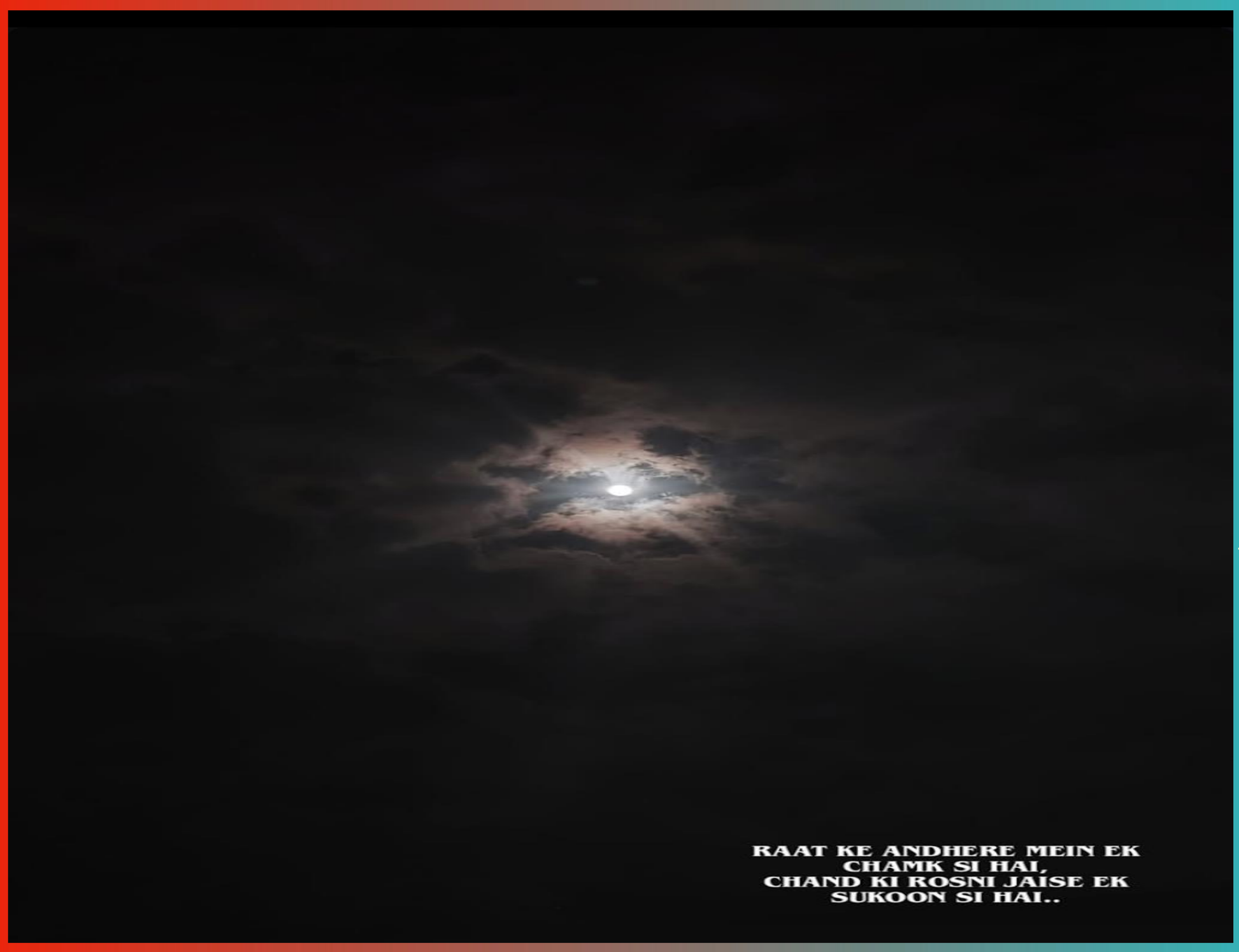


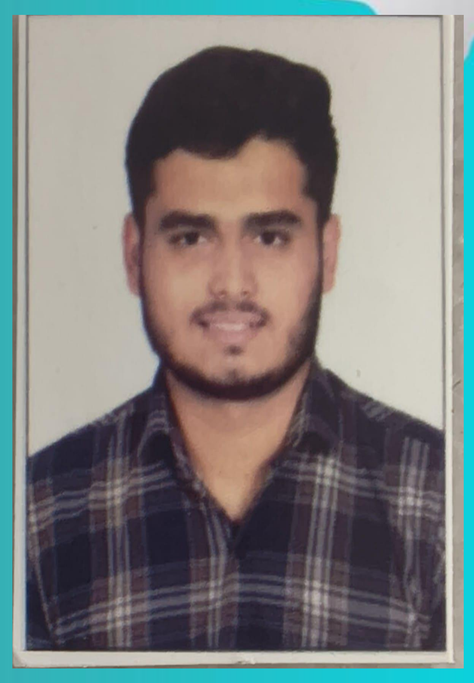
Shreya Thakor,EST - 6th SemB.E

GAZE OF EMOTIONS

Mahek Prajapati
ME-2nd Sem
Chemistry

SHADOWS AND SILVER LININGS





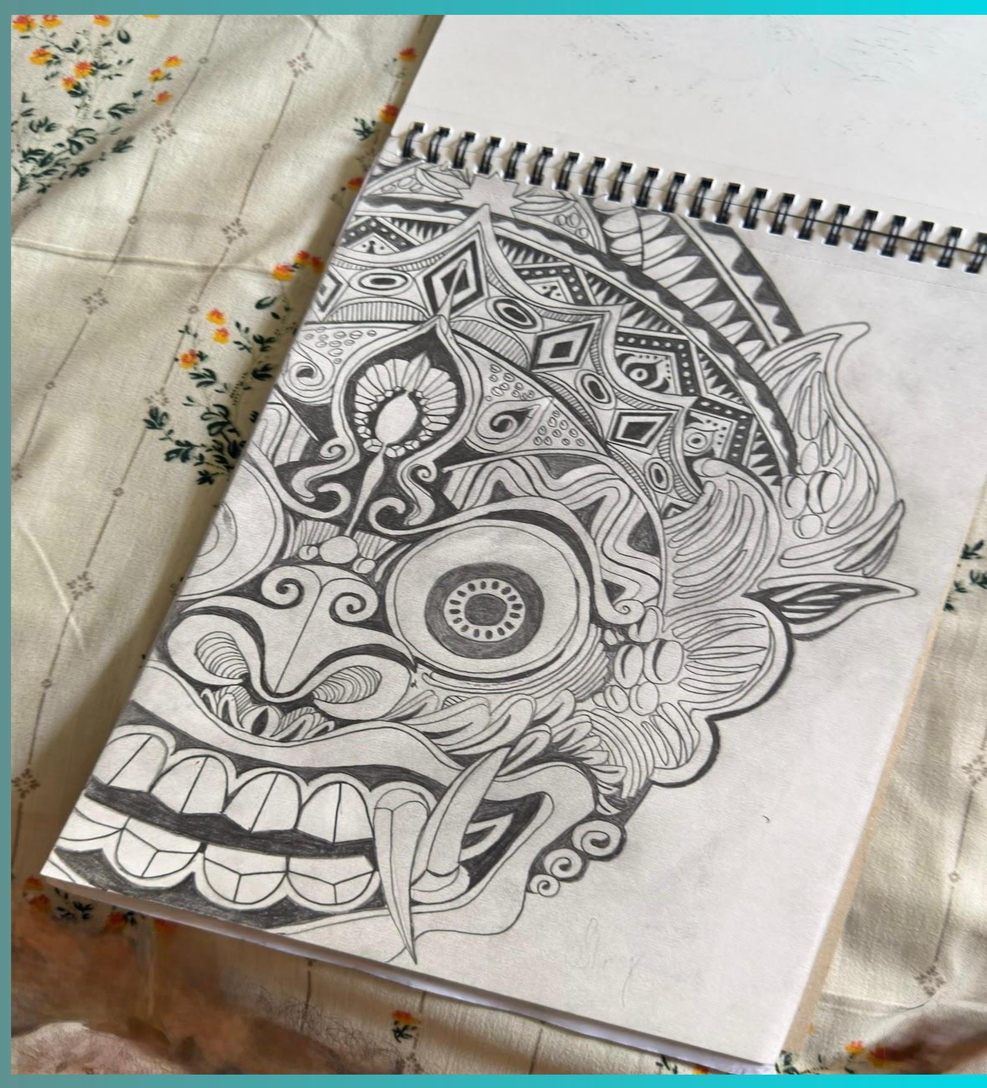
Alaysinh Chavda CE-6th Sem B.E

Surabhi Rawat B.Sc-6th Sem Microbiology

MANDALA ART

Kamini Girase
CO- 2nd Sem
D.E

Bhavya Modi-CO- 2nd Sem
D.E

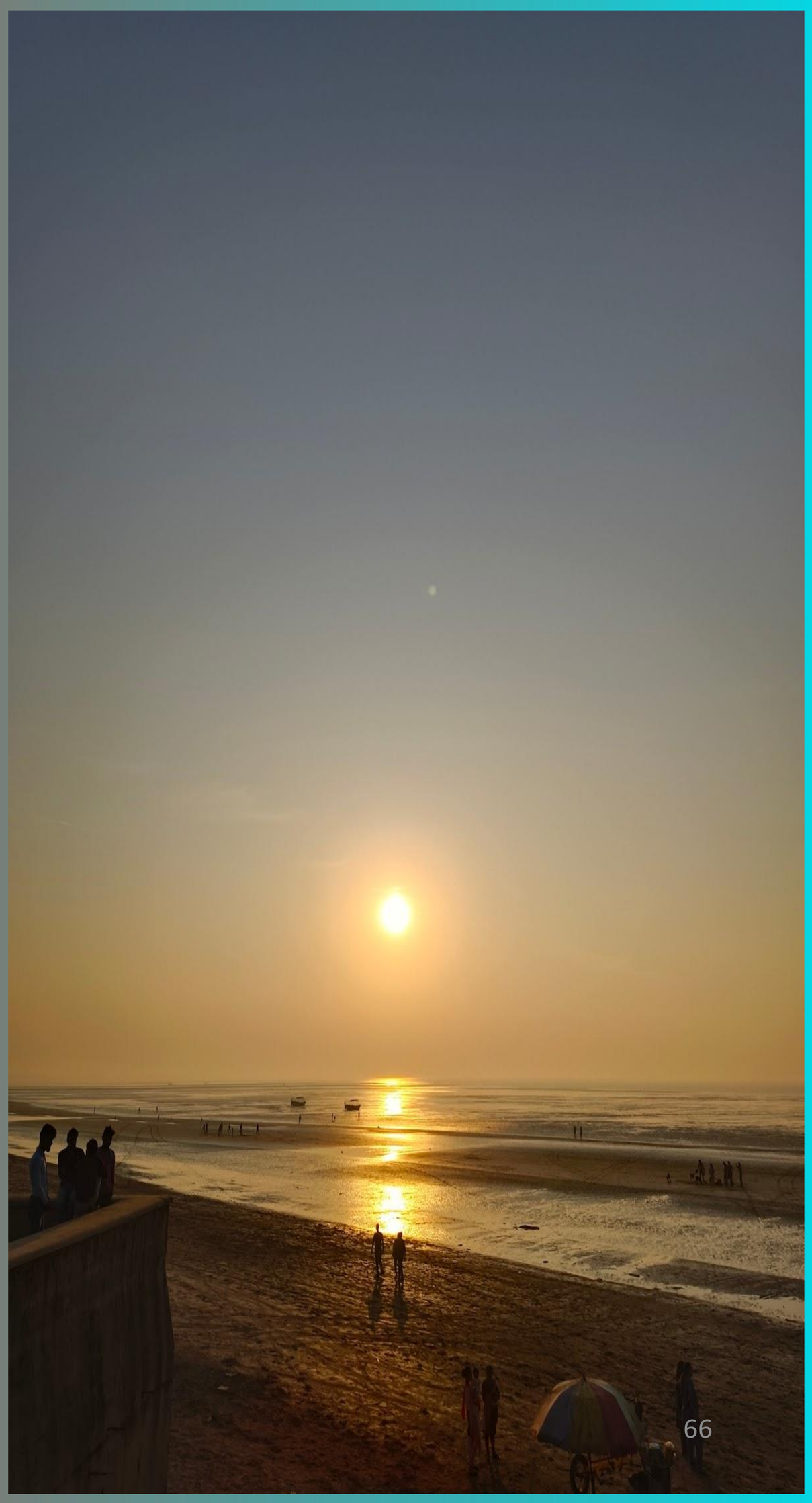


Sajidhusain Aghariya
IT - 2nd Sem D.E

WHISPERS OF HORIZON

Kartik Pandey
CT – 4th Sem
B.E

Pooja soni
CO – 2nd Sem
D.E

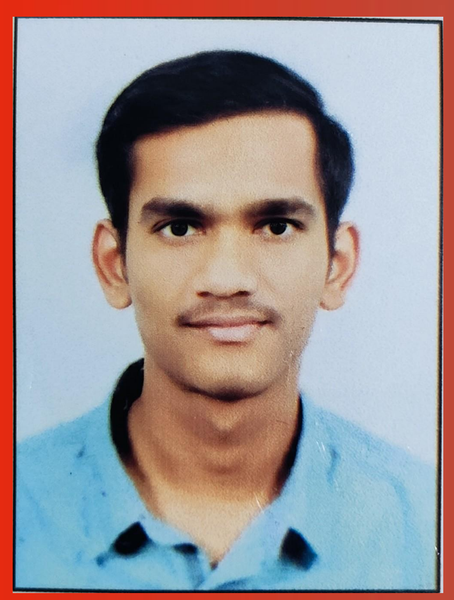


Echoes in the cloud

Raj Rathod
CE-4th Sem
D.E

Tarang Gadhesariya
CO-4th Sem
D.E

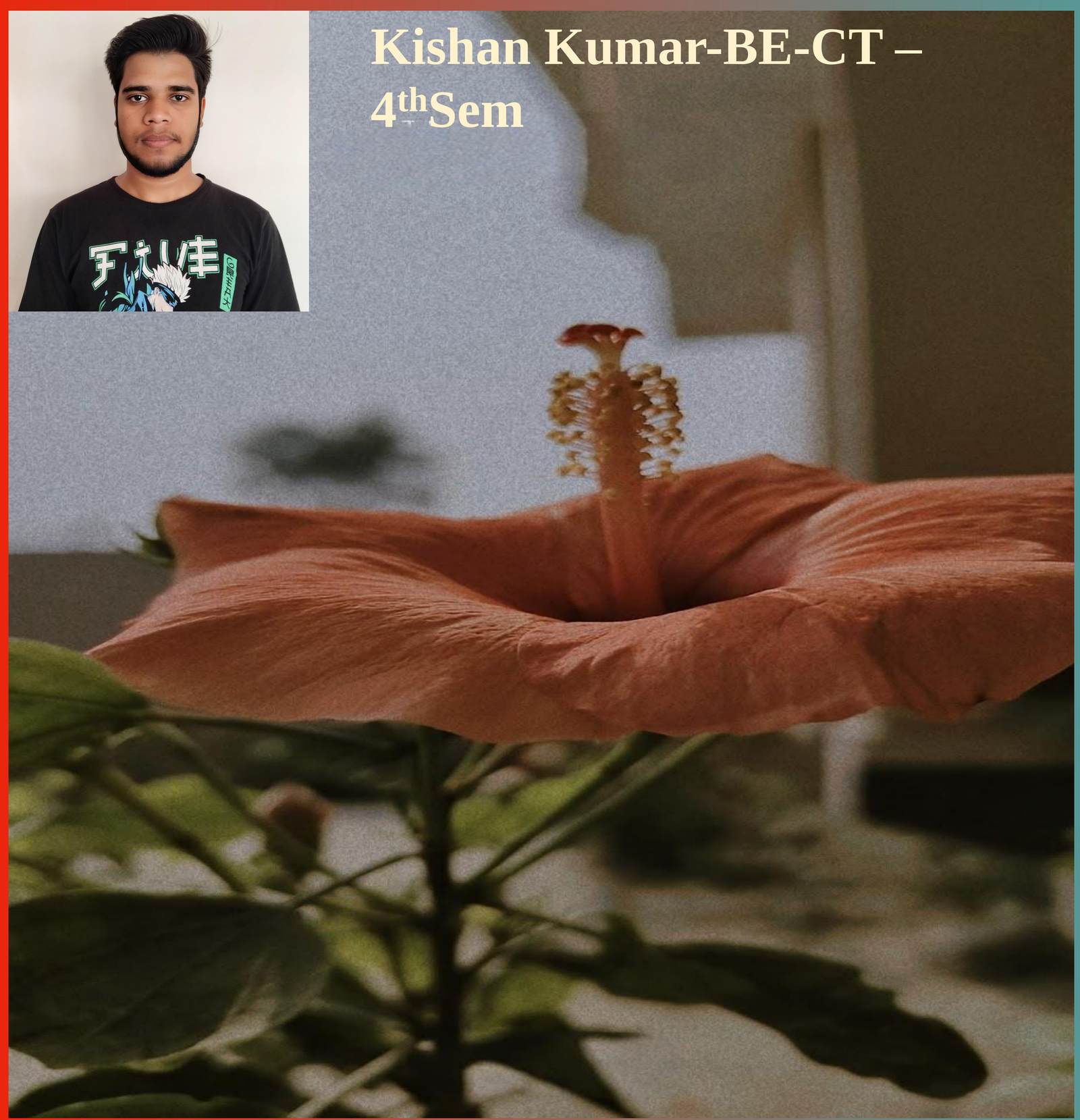
JOURNEY BEYOND TIME



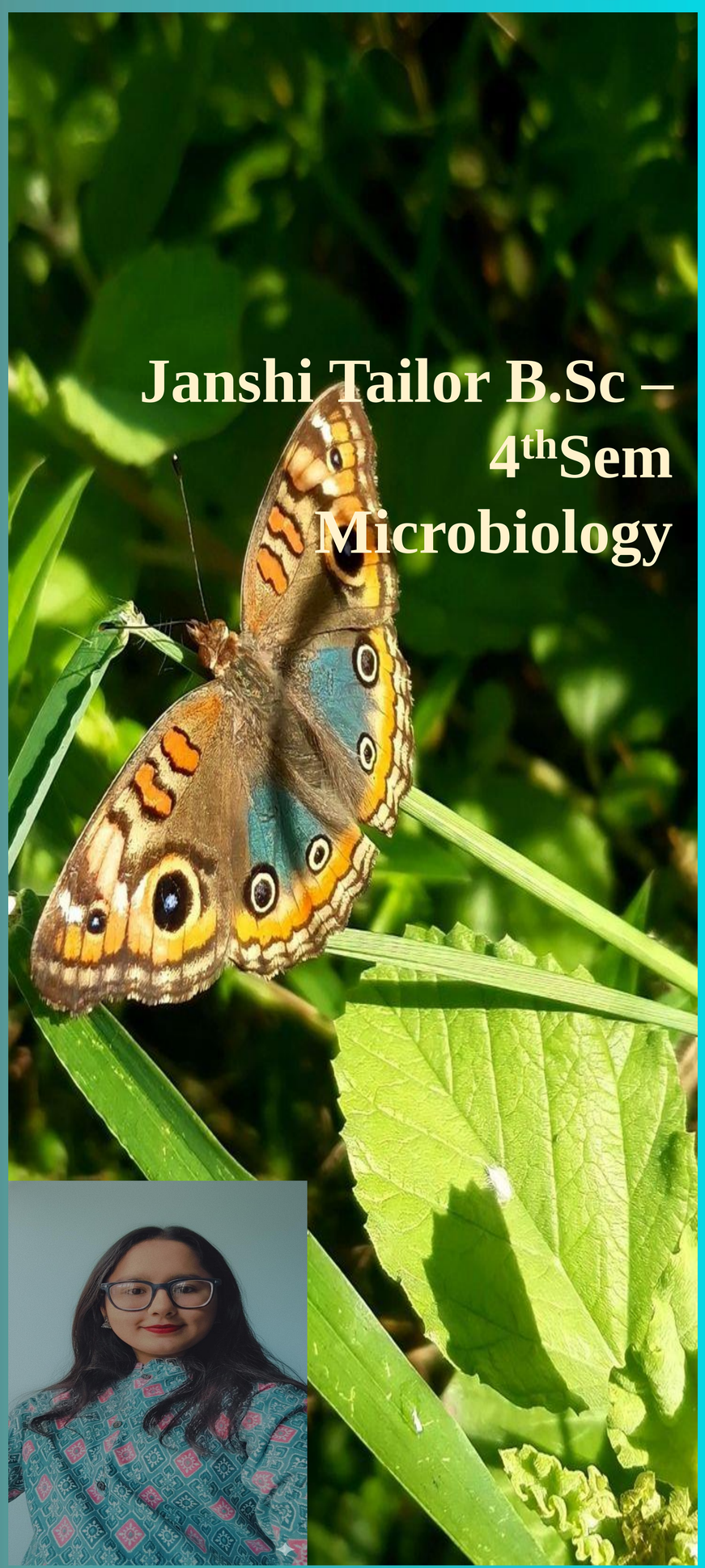
Tanmay Fatangara
MSc -4th sem
Chemistry

Ashish Pal ME– 6th Sem
B.E

WINGS OF SERENITY



Kishan Kumar-BE-CT – 4thSem



Janshi Tailor B.Sc – 4thSem Microbiology

Vidhi Patel B.Sc – 4th Sem Microbiology

UPL UNIVERSITY
OF
SUSTAINABLE TECHNOLOGY

Block No.402,Ankleshwar-Valia Road,
Taluka: Valia,District:Bharuch-393135
TEL:+91-9712177799
MOBILE:9727745875/76

https://twitter.com/upluniversity

https://www.facebook.com/upluniversity

https://www.instagram.com/upluniversity