



Department of Civil Engineering
HBTU Kanpur

TECHNICON

ASSOCIATION OF CIVIL ENGINEERS

THANDA BARTAN
INNOVATIONS IN THE
DEPARTMENT

AWARDS

**BEST REVIEWER
AWARD**

HAPPENINGS OF THE
DEPARTMENT **OF THE**
FUN FILLED EVENTS

AUG 2023
ISSUE NO 4



THE TECHNICON

A Magazine from Association of Civil Engineers

DEPARTMENT OF CIVIL ENGINEERING
HARCOURT BUTLER TECHNICAL
UNIVERSITY, KANPUR

TECHNICON

CONTENTS

PAGE 6

SOLSTICES AND EQUINOXES

PAGE 8

ENGINEERING MARVEL

PAGE 9

ENGINEERING SCIENCES AWARD

PAGE 10

STUDENT CORNER

PAGE 11

THANDA BARTAN

PAGE 15

PHOTO GALLERY

PAGE 17

CONVOCATION '23



FROM

HEAD OF CIVIL ENGINEERING DEPARTMENT



DR. DIPTEEK PARMAR

PROFESSOR & HEAD CIVIL ENGINEERING DEPARTMENT, HBTU

Dear Readers,

It brings me immense pleasure to extend warm greetings to all the readers of The Technicon, our esteemed department magazine, under the aegis of the Association of Civil Engineers (ACE) at HBTU Kanpur. As Head of the Department, I am continually inspired by the dedication and passion displayed by our students and faculty members in advancing the field of civil engineering. The Technicon serves as a platform to showcase our collective achievements, research endeavors, and innovative projects that contribute to the growth and development of our department. Through the pages of The Technicon, we aim to foster a culture of knowledge sharing, collaboration, and creativity. Each article, each project spotlight, and each interview reflects the depth of expertise and the spirit of excellence that defines our department.

I would like to extend my heartfelt appreciation to the editorial team, contributors, and everyone involved in the publication of The Technicon. Your hard work and commitment are instrumental in maintaining the high standards of our magazine. As we embark on another edition of The Technicon, I encourage all readers to explore its contents with curiosity and enthusiasm. Let the stories within these pages ignite your passion for civil engineering and inspire you to push the boundaries of innovation even further.

Thank you for your continued support and engagement with The Technicon. Together, let us continue to elevate the discourse and achievements of our department to new heights.

A background image of the Harcourt Butler Technical University building, a large, modern structure with a prominent entrance and a sign that reads "HARCOURT BUTLER TECHNICAL UNIVERSITY CIVIL ENGINEERING DEPARTMENT".

**ASSOCIATION OF CIVIL ENGINEERING
HARCOURT BUTLER TECHNICAL UNIVERSITY**



FROM

THE CONVENER'S DESK

DR. KAVITA TANDON

PROFESSOR & CONVENER, ASSOCIATION OF CIVIL ENGINEERS, HBTU

Greetings from the Association of Civil Engineers (ACE) at HBTU Kanpur!

As we delve into the latest edition of our magazine, it gives me immense pleasure to update you on the recent strides and upcoming ventures of our society.

Firstly, I extend my heartfelt appreciation to our members whose unwavering dedication continues to fuel the success of ACE. Your commitment to the field of civil engineering is truly commendable. In the spirit of enriching our knowledge and practical skills, ACE is thrilled to announce a series of upcoming events. From insightful guest lectures by industry experts to hands-on workshops and captivating field trips, we are committed to providing enriching experiences that complement our academic pursuits. Keep an eye on our communication channels for more details and make sure to mark your calendars!

In addition to our events, ACE thrives on the collaborative efforts of our members. Your ideas and suggestions are the cornerstones of our society's growth. Don't hesitate to share your thoughts with us – together, we can sculpt a vibrant community that fosters learning and innovation.

As we navigate through these exciting times, I urge all members to stay connected with ACE. Follow us on social media, engage in our discussions, and be an active participant in shaping the future of civil engineering at HBTU Kanpur.

In closing, I extend my sincere gratitude to each one of you for your continued support and enthusiasm. Let's continue to build bridges – both metaphorically and literally – as we embark on this enriching journey together.



**ASSOCIATION OF CIVIL ENGINEERS
HARCOURT BUTLER TECHNICAL UNIVERSITY**



articles

RELATED TO CIVIL ENGINEERING

THE TECHNICON

ASSOCIATION OF CIVIL ENGINEERS
HARCOURT BUTLER TECHNICAL UNIVERSITY



Revolutionizing Construction: Origami-Inspired Structures

Imagine bridges that can fold and shelters that can adapt on demand. This isn't science fiction but a groundbreaking reality crafted by engineers at the University of Michigan. Their innovation? Origami modules—compact, foldable components capable of transforming into various structures. These structures promise rapid reconstruction in the aftermath of natural disasters or construction in previously inaccessible areas like outer space. They're also ideal for temporary venues like concert stages. "Our system combines adaptability with load-bearing capability, making it ideal for modern construction," explains Evgueni Filipov, one of the study's authors.

Origami's principles allow large materials to collapse into small spaces, but creating systems with both strength and flexibility has been a challenge. Enter U-M's solution: a modular origami system capable of supporting substantial weight while maintaining flexibility. For example: A 3.3-foot-tall column that supports over 2 tons while weighing just 16 pounds.

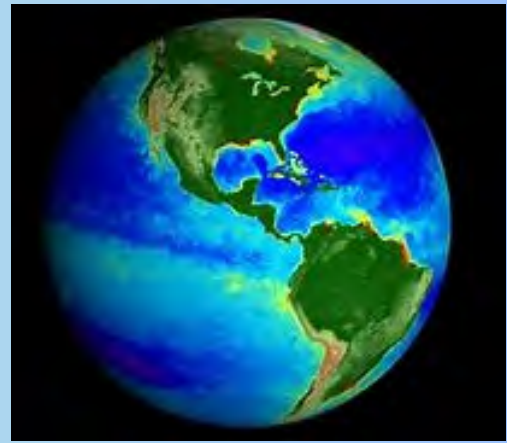
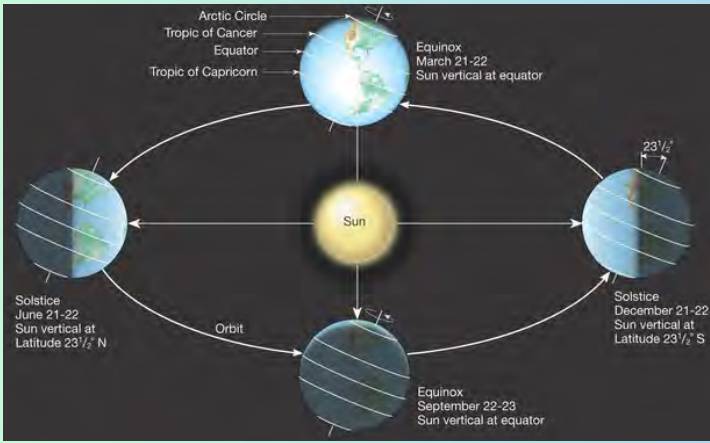
A package unfolding from a 1.6-foot-wide cube into structures like a 13-foot-long bridge, a 6.5-foot-tall bus stop, or a 13-foot-tall column. Yi Zhu, the study's lead author, introduced a novel design approach crucial to this breakthrough. Instead of starting with thin, paper-like models, they developed mathematical tools considering material thickness from the outset.

Many researchers attempted to reinforce thin designs with varying thicknesses, but U-M's team found uniformity to be key. "Mismatched thicknesses cause bending when loads are applied," explains Filipov. "Uniformity, along with locking devices, ensures even weight distribution." Dubbed the Modular and Uniformly Thick Origami-Inspired Structure system, this innovation can morph into bridges, walls, floors, and more. U-M's progress benefited from the Sequentially Working Origami Multi-Physics Simulator (SWOMPS), a tool predicting large-scale origami behavior. Funded by the National Science Foundation and the Automotive Research Center, this research paves the way for a new era in construction—one where versatility meets strength, all thanks to the art of origami.

DR. KAVITA TANDON

(Source: Zhu et al. 2024)





Do You Know?

Solstices and equinoxes are celestial events that mark pivotal moments in Earth's orbit around the Sun, heralding the changing of seasons. While they both influence the lengths of days and nights, they are distinct phenomena with unique characteristics. Solstices occur twice a year, typically around June 20 or 21 and December 21 or 22. During a solstice, the Sun's path in the sky reaches its northernmost or southernmost point, resulting in the longest day or shortest day of the year, depending on the hemisphere. In the Northern Hemisphere, the June solstice marks the beginning of summer, while the December solstice signals the onset of winter. Conversely, in the Southern Hemisphere, the seasons are reversed during these times.

SOLSTICES AND EQUINOXES

Equinoxes, on the other hand, occur around March 21 and September 23 each year. During an equinox, the Sun is directly above the Equator, resulting in equal lengths of day and night across the globe. The vernal equinox, around March 21, marks the beginning of spring in the Northern Hemisphere, while the autumnal equinox, around September 23, signals the start of autumn. These celestial events represent a balance between day and night, symbolizing the transition between seasons. In essence, solstices and equinoxes play complementary roles in shaping Earth's seasonal cycle, each marking a significant point in the calendar and influencing the rhythms of nature. Understanding the distinction between these celestial events enriches our appreciation of the interconnectedness between Earth, the Sun, and the changing seasons.

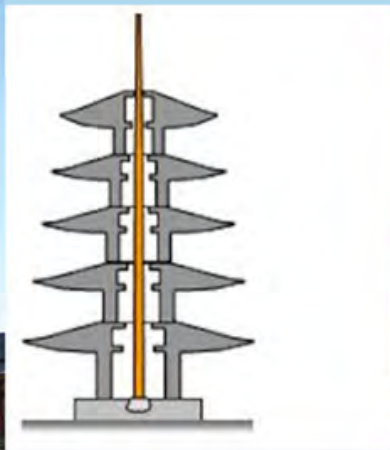


Standing tall while the ground shivers

Earthquakes scares most of us. How would you feel, if you are inside a tower, standing on a glass floor at a height of 450m from ground, knowing that there is a 70% chance for a massive earthquake anytime? Structural engineering wisdom, passed on from ancient times, will enable us to walk the glass floor with confidence and pride.

Situated on the Pacific ring of fire, Tokyo is one of the most earthquake-prone cities in the world. Yet, ancient and modern tower structures stand tall side by side. Pagodas are wooden tower structures predominantly present in Buddhist temple premises. Most of the Pagodas are centuries old and symbol of ancient architecture in Asia. Tokyo Sky Tree is a 634m tall modern concrete and steel structure inaugurated in 2012. The major vibration control technique employed for the seismic resistant design of both the structures are the same.

The structures contain a central core column (shinbashira) which vibrates at a different frequency than the rest of the structure. This difference in frequencies help the structure from attaining intense vibrations and keep the structure safe even during the devastating earthquakes. Shinbashira is simple but effective example of vibration control using keeping life and structures safe.



Pagoda



Tokyo Sky Tree

ENGINEERING MARVELS

KEMPEGOWDA INTERNATIONAL AIRPORT

Bengaluru's Kempegowda International Airport managed to stand out in a recent announcement from UNESCO's Prix Versailles 2023. It has been recognized as the 'World's most beautiful airport' and was awarded the coveted 'World Special Prize for an Interior 2023.'

"A commendable feat! Congratulations to the people of Bengaluru. Terminal 2 of the Kempegowda International Airport is not just a gateway to the vibrant city of Bengaluru but also a showcase of architectural brilliance," he wrote on the microblogging site.

"This accomplishment reflects the country's growing prowess in combining world-class infrastructure with artistic beauty," the Prime Minister added.

Besides this, the [Kempegowda International Airport Bengaluru](#) has also secured the top position as the world's most punctual airport in October this year. On-time departure ranking measures the percentage of flights that departed within 15 minutes of the scheduled time.

The Kempegowda International Airport operated by Bangalore International Airport Limited maintained an "impressive" on-time departure experience for passengers, with 87.51 percent punctuality in July, 89.66 percent in August, and 88.51 percent in September, a BIAL statement had earlier said.

The Bengaluru airport on August 31 had announced the commencement of international operations at Terminal 2.



ENGINEERING SCIENCES AWARD - 2022

SHANTI SWAROOP BHATNAGAR AWARD:

The Shanti Swarup Bhatnagar Prize for Science and Technology, named after the eminent Indian scientist, is one of the most prestigious awards in India, recognizing outstanding contributions to science and technology. In 2022, the award was bestowed upon Prof. Dipti Ranjan Sahoo from IIT Delhi and Prof. Rajnish Kumar from IIT Madras for their remarkable achievements in their respective fields.

Prof. Dipti Ranjan Sahoo, affiliated with IIT Delhi, was honored for his groundbreaking work in the field of Chemistry. His research primarily focuses on the development of innovative synthetic methodologies and their applications in drug discovery and materials science. Prof. Sahoo's contributions have not only advanced the understanding of chemical processes but also hold tremendous potential for addressing real-world challenges in healthcare and materials development.

Prof. Rajnish Kumar, associated with IIT Madras, was recognized for his outstanding contributions to the field of Engineering Sciences. His research spans various domains within engineering, with significant contributions in areas such as computational mechanics, structural optimization, and finite element methods. Prof. Kumar's work has not only advanced the theoretical understanding of engineering principles but also led to practical applications with far-reaching implications in diverse sectors, including aerospace, automotive, and civil engineering.

Both Prof. Sahoo and Prof. Kumar exemplify the spirit of scientific inquiry and innovation, contributing significantly to the advancement of their respective fields. Their achievements not only bring honor to their institutions but also serve as an inspiration to aspiring scientists and engineers across the nation.



STUDENT CORNER



THANDA BARTAN

Earthenware Evaporative Cooler

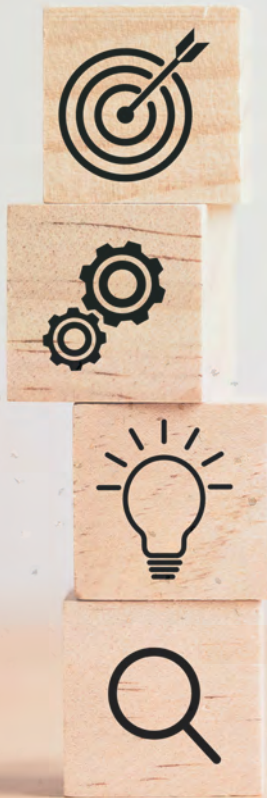
Anurag Basu

Final, Btech Civil Engineering
HBTU, Kanpur



Anurag Basu

Combining the ancestral knowledge and modern physics we put forward the idea of *EARTHEN FRESH* which is natural, economical, healthy, pollution free and an effective step towards green Earth. It will not only solve the problems of scorching summer at greater extent but also gives us another chance to thank our ancestors.



Thanda Bartan is a startup company dealing with the idea of an evaporative cooler for the storage of fruits, vegetables, and other edible items. India is well known for its traditions, and so is its tradition of storing water in earthenware.

It's an age-old concept that has faded with time. Pottery in the Indian subcontinent has an ancient history and is one of the most tangible and iconic elements of Indian art. Evidence of pottery has been found in the early settlements of Lahuradewa and later in the Indus Valley civilization. Today, it is a cultural art that is still practised extensively in the Indian subcontinent. Until recent times, all Indian pottery was earthenware. Commonly known as matkas, earthen pots are a vital accessory for Indian kitchens. They function as traditional refrigerators. The porous nature of these pots makes the accommodated water sift through the pores. The sifted water extracts heat from the water contained in the pot and evaporates from the surface. It's a continuous process that keeps the surface of the pot moist and the water temperature low. The greater the ambient heat, the greater the cooling effect. This golden concept was then washed over by modernization as we moved to the stainless steel, bone china, or melamine era. One can get a rare antique of an earthen pot in a few homes these days, the reason being its natural benefits. Earthenware has tremendous health benefits. The porous material of clay helps water seep through it, letting you enjoy the mildly cool water. Not only this, but the mineral composition and porous nature of clay pots and other clay products are also beneficial for the food items stored in them.

Achievements



- **SHORTLISTED IN TOP 10 YOUNG ENTREPRENEURSHIP SUMMIT 2022 AT PITCH-PERFECT IIM BODHGAYA**
- **4TH POSITION AT BUSINESS VALLEY -BITSOM**

भवरे को पुष्प मिलेगा या रस वंचित
रह जायेगा।।

भवरे को पुष्प मिलेगा या रस वंचित रह जायेगा,
उत्तर ये कलम दवात और स्याही की दिशा से आएगा।

वर्षों से बंद कलम को कुछ लिखने की आस है,
स्याही बिन कैसे लिखे, कोसों दूर दावत है।
ऐसा नहीं दवात को कलम, कलम को दवात की नहीं पता बात है,
स्याही सटीक कलम को और दवात को कलम पर आस है।

किन्तु!

ये लोक छवि, छवि अभिमान
हठी आसक्ति, आसक्ति में प्राण
कोई कैसे पहला पग उठाएगा ?

पर,

इस पहले पग के चक्कर में, प्रश्न यही रह जायेगा
भवारे को पुष्प मिलेगा या रस वंचित रह जायेगा।।

जुगनू भानु, या दीप मानू
अन्यथा कोई और, मात्र यही जानू
जब दीप को बाती मिलेगी, वो जगमगाएगा।
आलिन्त को दूजा पुष्प मिले, या रस ये दूजा भंग पाएगा,
अंतर नहीं कोई पर प्रश्न वही आएगा,
भवारे को पुष्प मिलेगा, या रस वंचित रह जायेगा।।

-Harsh Kapil

2nd BTech CE

ढल रही है रातें

बैठे बैठे बस एक अंजान सा ख्याल आया
क्या हम भी वहां जा सकते हैं?
जहां हो बीएस खामोशी और सुकून
क्या वो भी दिन आ गया है?
बीएस सवाल हे सवाल भरे जिंदगी में
क्या जवाब भी कभी ढूंढ पायेगा
चल छोड़ तू जवाब, बस आज पे भी ध्यान दे
कल का कल वह देखा जायेगा
कब तक घुट घुट कर लेते रहोगे साँसें
चेहरे पर हैं मुस्कुराहटें पर
कुछ अलग है कहानी बयां कर रही है आंखें
उठ जरा बाहर तो आ
देख आज फिर निकला है सूरज
कहती है हवा बहते जा
आज तुझे छू कर
वो चली गई वो चल गया
कोई छोड़ आया कोई छोड़ गया
कब तक वहां रूकने का इरादा है
क्यू बरबाद करे अपने दिन
वक्त क्या बहुत ज्यादा है?

-Nishant Rajput

2nd BTech CE

Events @ ACE

Association of Civil Engineers

WELCOMES 1ST

YEAR CIVIL ENGINEERING STUDENTS

YEAR 2023-2027

New chapters, new adventures, new knowledge to uncover.

Department of Civil Engineering

ASSOCIATION OF CIVIL ENGINEERS
DEPARTMENT OF CIVIL ENGINEERING

TECHNOBUZZ SHOW

BATCHES 3-4 Get ready and bring your A-game!

Trophies for the Winning Team
Brain-Teasing Questions
Fun Trivia Games for Audience

Join us for an electrifying evening of knowledge and fun at the Technical and general Quiz Show Competition!

FEBRUARY 17 2023

Association of Civil Engineers
Department of Civil Engineering, HBTU Kanpur

Surveying Treasure Hunt

8th Oct 2022

ACE HBTU

2022-23

Association of Civil Engineers

PRESENTS

SPORTS FEST

FRIENDSHIP AND CAMARADERIE

21ST JAN 2023
9:00 AM
CRICKET GROUND
WEST CAMPUS

@ACE_HBTU

Association of Civil Engineers

PRESENTS

SKILLENZIA

ONLINE EVENT
Show your captivating photographs and presenting posters on structural designs or construction methods

CONTEST DEADLINE **24TH JAN** WINNERS ANNOUNCED **26TH JAN**

Upload your Entries on Google Form given below.

GIVE UP YOUR SHOTS

Presents

DEBAT-athon

ALL YEAR
16TH MARCH, 2024

10:00 AM TO 3:00 PM SEMINAR HALL, CED

A C E A T A G L A N C E

PHOTO GALLERY

EXPLORING THE DEPARTMENT THROUGH A LENS





**CIVIL ENGINEERING
TOPPER**

CONVOCATION 2023



VISHESH KUMAR



SUDHEER SINGH

**#civil
engineers**

DISTINGUISHED ALUMNI'S

1. Mr. Triloki Nath, 1985, Chief Engineer, LDA, Lucknow
2. Prof. Alok Verma, 1985, DTU Delhi
3. Prof. Anil Dikshit, 1986, IIT Mumbai
4. Mr. K.P. Singh, 1986, SE, MCD Delhi
5. Prof. S.K. Katiyar, 1986, MANIT Bhopal,
6. Mr. Arvind Garg, 1987, MD, Technpro Engineers Private Limited
7. Mr. Negi, Member, 1987, Delhi Jal Board
8. Mr. Ajay Kumar Gupta, 1987, HPCL
9. Mr. Vivek Prakash, 1987, DMRC Delhi
10. Mr. Vivek Prakash Srivastav, 1987, TIFR Mumbai
11. Mr. Balram Upadhyay, 1991, IPS, Commissioner, Trivendram
12. Mr. Sanjay Sahu, 1991, IES, Indian Railways
13. Mr. Arvind Singh, 1992, Director, Kanpur Metro
14. Mr. Manmohan Gupta, 1993, IIM Rohtak
15. Mr. Rajesh Yadav, 1993, IAS, Rajasthan Cadre
16. Mr. Udeep Singhal, 1994, GM, NHAI
17. Mr. Sudhir Singh, 1996, Ventech Engineers, Kanpur
18. Mr. Vijay DSingh, 1998, IES, IRSE
19. Prof. Akhilesh Kumar Maurya, 1999, IIT Guwahati
20. Mr. Neelabh Kanpoor, 2000, ONGC
21. Mr. Sushil Kumar, 2000, NTPC
22. Mr. Pankaj Singh, 2002, IOCL Mumbai
23. Mr. Manoj Kumar Singh, 2002, EIL
24. Mr. Upendra Kumar, 2003, IES, CPWD
25. Mr. Manish Kumar, 2003, IES, AGE, MES
26. Mr. Manish Jaiswal, 2004, IES, CWC
27. Mr. Abu Amir, 2004, IES, MES
28. Mr. Nitesh Kumar Singh, 2005, NTPC
29. Mr. Anand, 2005, NTPC
30. Mr. Sudhanshu Nagayach, 2006, IES, Indian Railways
31. Mr. Rajeev, 2006, SAIL
32. Mr. Setu Raman Agarwal, 2006, NTPC
33. Mr. Rajeev Dhiman, 2006, SAIL
34. Mr. Mohit Chak, 2006, NTPC
35. Mr. Azam Ali, 2006, Unicon Limited, Qatar
36. Mr. Savyasachi Tripathi, 2007, EIL
37. Mr. Sandeep Gupta, 2008, IOCL
38. Mr. Vinod Kumar Verma, 2008, IES, Indian Railways
39. Mr. Sanjeev Kumar Singh, 2009, IEE, MES
40. Mr. Aman Sachan, 2009, IES, CPWD
41. Mr. Raj Kishore Singh, 2009, MoRTH, IES,
42. Mr. Avinash Kumar, 2009, IES, Railways
43. Mr. Anand Kumar, 2009, AAI
44. Mr. Prakash Chand Gupta, 2009, NTPC
45. Mr. Achal Jain, 2009, NTPC
46. Mr. Kaushal Khandelwal, 2009, BPCL
47. Mr. Rajesh, 2009, ONGC
48. Mr. Ravi Sharma, 2010, IES, Indian Railways
49. Mr. Atul Singh, 2010, NTPC
50. Mr. Peeyush Srivastava, 2010, DMRC
51. Mr. Rudra, 2010, NTPC
52. Mr. Harsh, 2010, NTPC
53. Mr. Anand Kumar, 2010, Ph.D, EPFL Switzerland, PDF- UBC, Canada
54. Mr. Saad Miyan Khan, 2012, IPS, Jhansi
55. Mr. Vishal Mishra, 2012, IAS, Municipal Commissioner, Rudrapur, Uttarakhand
56. Ms. Nishtha Saraswat, 2013, SHELL Singapore

MEET THE TEAM



Convener- Dr. Kavita Tandon



President - Atishay Jain



Vice President - Deependra Arya



Design Secretary
Abhishek Srivastava



General Secretary
Anshita Shukla



T&P Representative
Khushi



Sports Secretary
Aryan Yadav



Literary Secretary
Suraj Tripathi

MEET THE TEAM



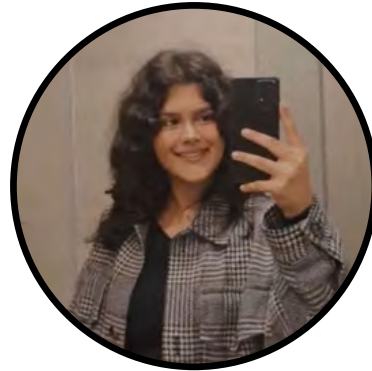
Design Associate
Sumit Raghav



Social Media Associate
Lakshya Jeet Singh



Cultural Associate
Khushi Thakur



Literary Associate
Abhigya Singh



Public Relation Associate
Rishika Mishra



Sports Associate
Anuratn Rajput

2023



TECHNICON

ANNUAL MAGAZINE '23