

# The Chemical lifestyle



**Volume 5: 2020**



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# ABOUT IIChE

Indian Institute Of Chemical Engineers is a confluence of streams of professionals from academia, research institute and industry. It provides them with the appropriate forum for joint endeavours, hand-in-hand, to work for human beings through the application of chemical engineering and allied sciences. If you are interested about, attached to or involved in chemical engineering related activities – whether as a student, as a seasoned professional - you shall find the purpose of IICHE immensely beneficial, opening up doors of new possibilities and existing possibilities.

Within nearly seven decades, IIChE has risen to numbers of over 15,000 members, 38 regional centres and over hundred student chapters and is now considered to be at the peak of professional bodies that bring together people of similar interests toward the chemical engineering world. Headquartered at Jadavpur University, the activities of the Institute are spread across the country through its 33 regional centres and student chapters.

The regional centers promote and complement the activities and objectives of the Institute within their respective territorial limits, by organizing meetings, conferences and seminars; arranging workshops, refresher courses and counseling sessions; promoting research; guiding Chemical Engineering students in career planning; and initiating any other activities which are of social, technical and professional relevance to their members.

They serve as open fora for their members who regularly gather for informal get-together and exchange of notes. The Regional Centers also confer awards, prizes and scholarships.



# IChE UPES SC

IChE UPES Student Chapter was established in 2012 to bridge the gap between the academicians and industry professionals. The chapter has continued to achieve a lot throughout its journeys since inception and has gained a remarkable reputation and respect through its exemplary actions.

As a student-run body, the chapter is well supported by the Chemical Engineering Department of the university. The reach and potential of its faculty members have helped guide and nurture young professionals.

The IChE UPES Student Chapter is headed by Dr Adarsh Arya and Mr. Amit Kr. Thakur, the Faculty Advisors who work to ensure that all the hopefuls of the Chemical Engineering domain stay well acquainted with the ever-changing dynamics of the Chemical Engineering world and to give them an added advantage in the professional sphere after they finish their education in the University.







# Editor's Note

Greetings readers,

Each attempt made to escalate a mountain counts, you comprehend it or not.

I'm overwhelmed to present to you the latest edition of 'Chemical Lifestyle'. Each year we've set a benchmark but this year is rather about self-reflection. The growth, rush, advancements and ideas were never enough to contain the fear people had amidst COVID-19 pandemic.

Thus, a need for technology and sustainable development to advance simultaneously has arisen.

This year's magazine pack contents ranging from AdChE to mind-boggling facts that'll leave you charmed for sure.

As a student-run body, we are open to suggestions, reviews and support too! Our aim to be able to serve student fraternity and find a way to nurture their skillset has and will always be our priority.

I hope you'll certainly be captivated and stimulated by this edition.

At last, I'd like to extend my gratitude to all our student, committee and Executive Board members, along with heads and alumni who have helped us expedite our legacy each day!

At last, signing off!

Saransh Katiyar

Head-Editorial Committee 2019-2020



# OFFICE BEARERS



**DR. P. Vijay**  
(Head of Chemical Dept.)



**Mr. Amit Kumar Thakur**  
(Faculty Advisor)



**DR. Adarsh Arya**  
(Faculty Advisor)



**Kanchan Gusain**  
(Secretary)



**Lalit Gupta**  
( Chapter Convenor)



**Aditya Kunwar**  
(Chapter Officer)



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(Member1)



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(Member2)



**Ravi Teja**  
(Joint Secretary)



**Praveen Kumar**  
(Tresurer)



# CHAPTER HEADS



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(C.S..R Head)



**Spraha Kulshreshta**  
(P.R. Head)



**Shivam Chaudhary**  
(Program Head)



**Saransh Katiyar**  
(Editorial Head)



**Pratitee Basak**  
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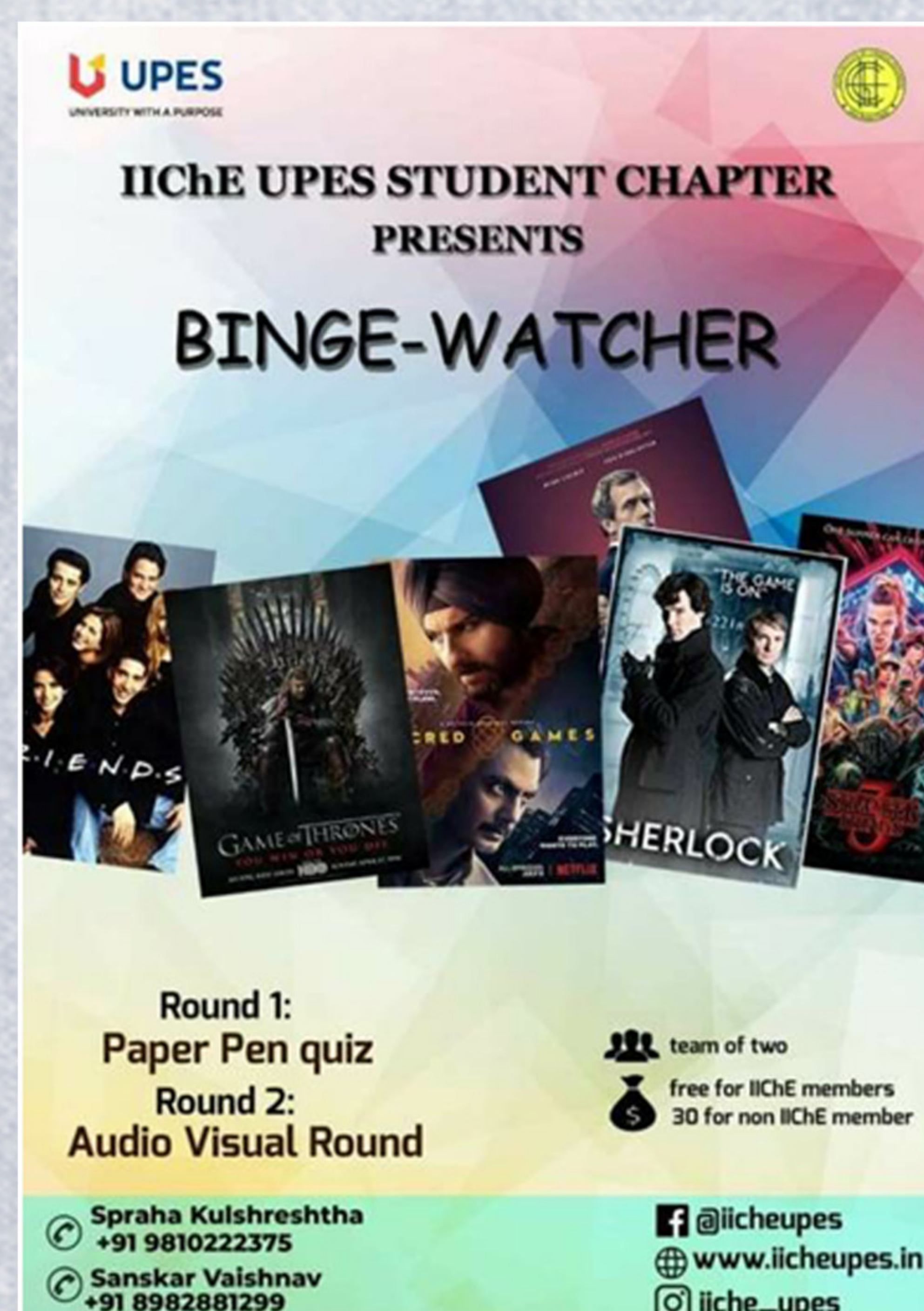
Isha Sinha  
Mukul Tyagi  
Prakhar Shukla  
Shivam Garg



# CHAPTER ARCHIVES

## Binge Watcher

This was the very first event held under the IICChE banner for the July- December period. It was specifically organized for the fresh batch, for first-year students, so that they enjoy to their fullest. This event strived at checking the retention power of TV series of any genre which you've watched. This event was carried out in two rounds. The first round was the pen-paper quiz and the second round was the audiovisual round.



## Safaigiri

On the auspicious day of Gandhi Jayanti, a cleanliness drive was carried out. In the year of 2014, our honorable Prime Minister Mr. Narendra Modi started the Swachh Bharat Abhiyan. Gandhiji was a torchbearer for cleanliness. "Everyone in his own scavenger"; said by Gandhiji and he kept on reiterating his word. Hence to grow this moment stronger, IICChE Student Chapter, in collaboration with Lazarus, ICFDR NGO, Infinity space club, FIPI, ACM, ICEE and NSS successfully organized the SAFAIGIRI Drive. In this event we exhorted students to clean our nearby areas. This drive was carried out from Bidholi to Bisanpur. A sense of responsibility had been evoked among students through this drive.





## Intern Talk

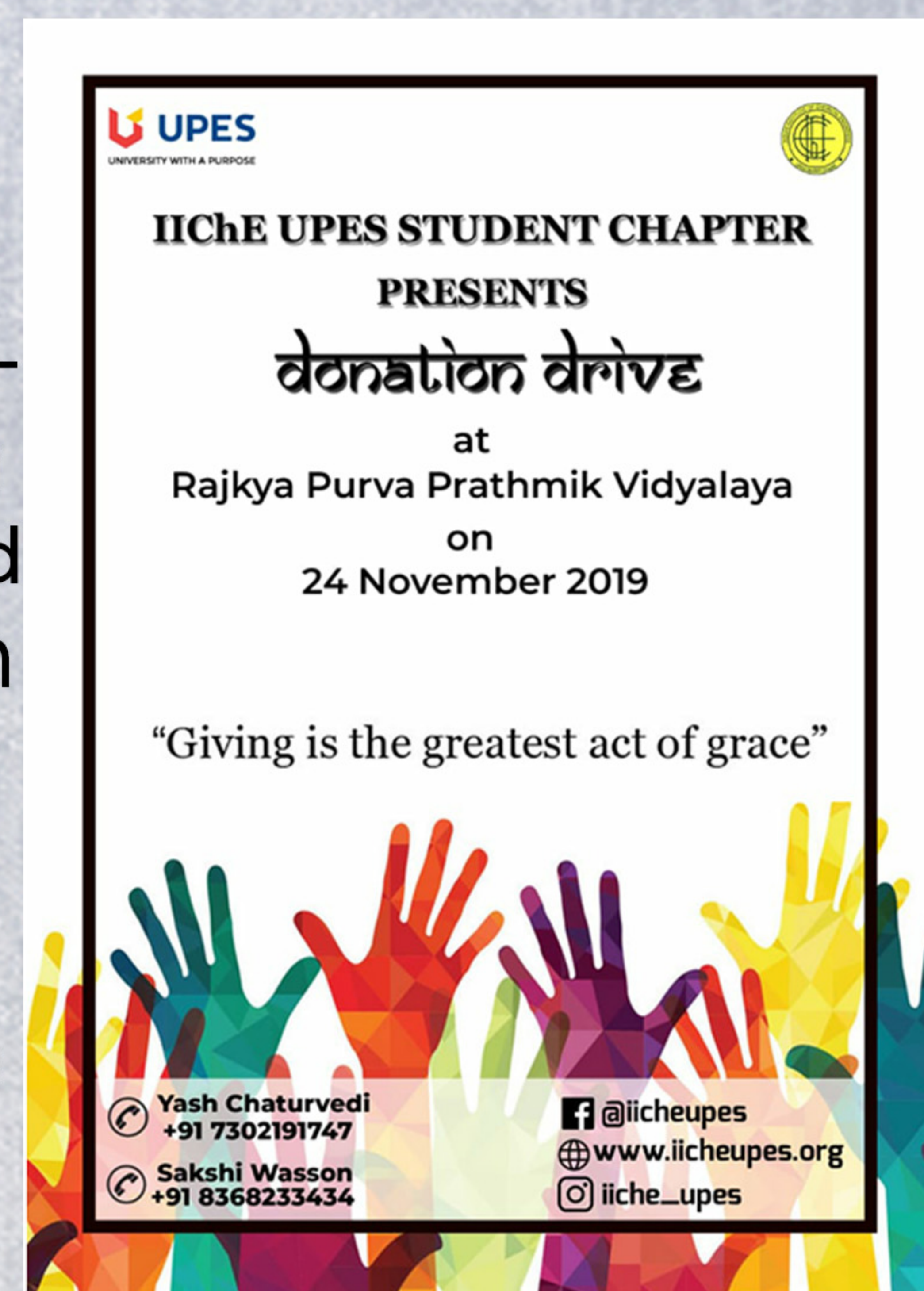
Every year IICChE Student Chapter Brings Intern talk to encourage the students to get a clear picture of the industry with genuine scenario. This helped the students to expose and understand the genuine case situation of an industry. “Coming together in beginning and keeping together a progress”. This year we had a very remarkable interaction session with our prominent seniors. The speakers were Hemendra Dave, Deveraja Devnarayan & Vishal Manikandan. The speakers told us about their experiences and also cleared doubts about academic and Industrial internship and differences in them. They also shared their valuable guidance & encouraged. Students.



## Donation Drive

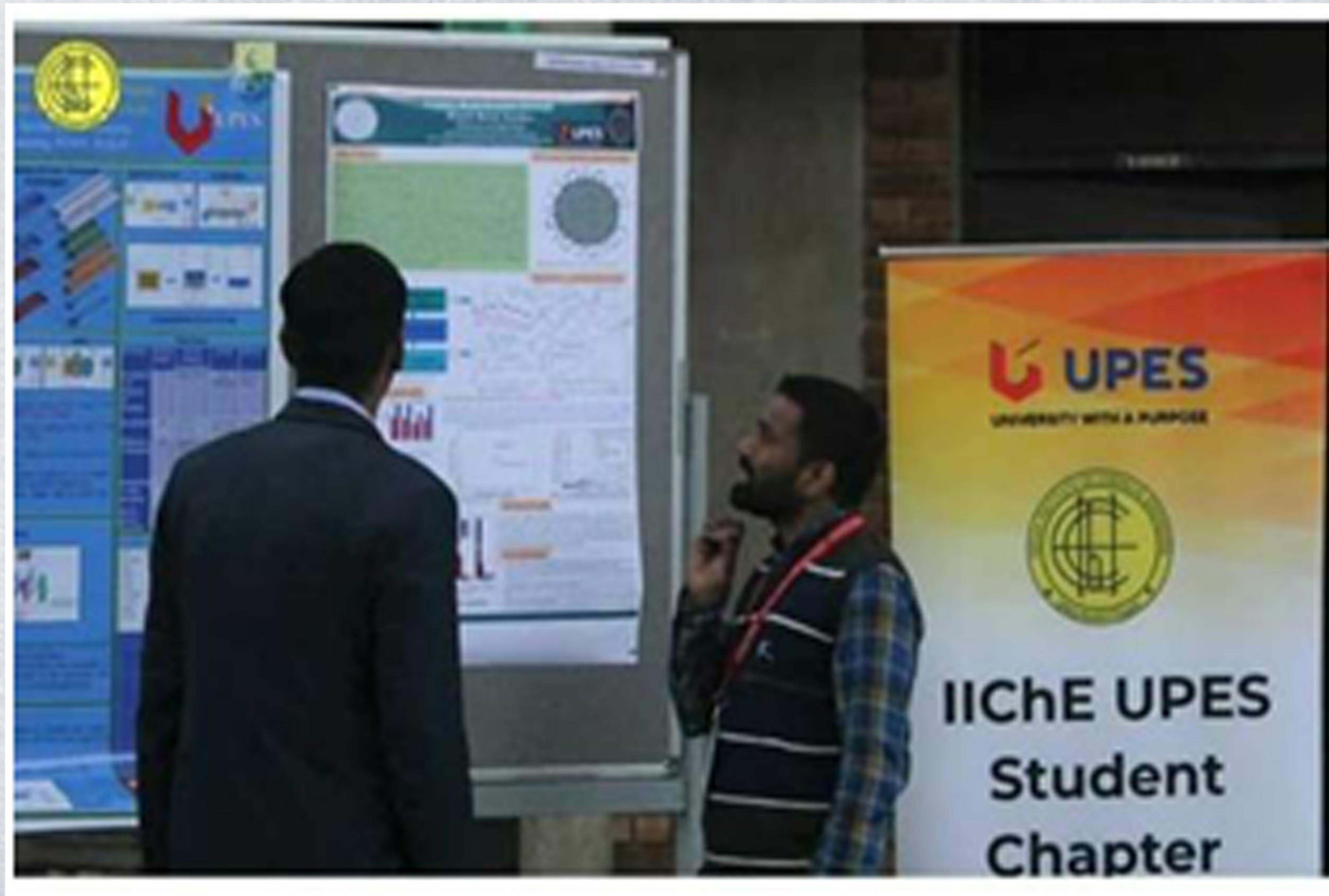
“We make a living by what we get, but we make a life by what we give”.

Every year IICChE UPES student Chapter organizes Donation Drive and this year it was organized on November 24, 2019. We should be thankful to God because he gave us such good parents that they can fulfill every requirement, but many don't have parents or the opportunities. Hence we followed a motto of giving a new life to our unused items by donating them to the needy. We assembled donations in the form of currency and things. These donations were distributed among children, to bring a smile.





# Advances In Chemical Engineering(AdChE)



IICChE UPES Student Chapter had organized “poster presentation” under AdChE. In this event, we had participants from various states. It was organized in the first week of February. The posters were the result of high researches done by the participants. The different ideas, visualizations, and thoughts made this event a successful one. The presence of great dignitaries boosted the confidence of the participants.

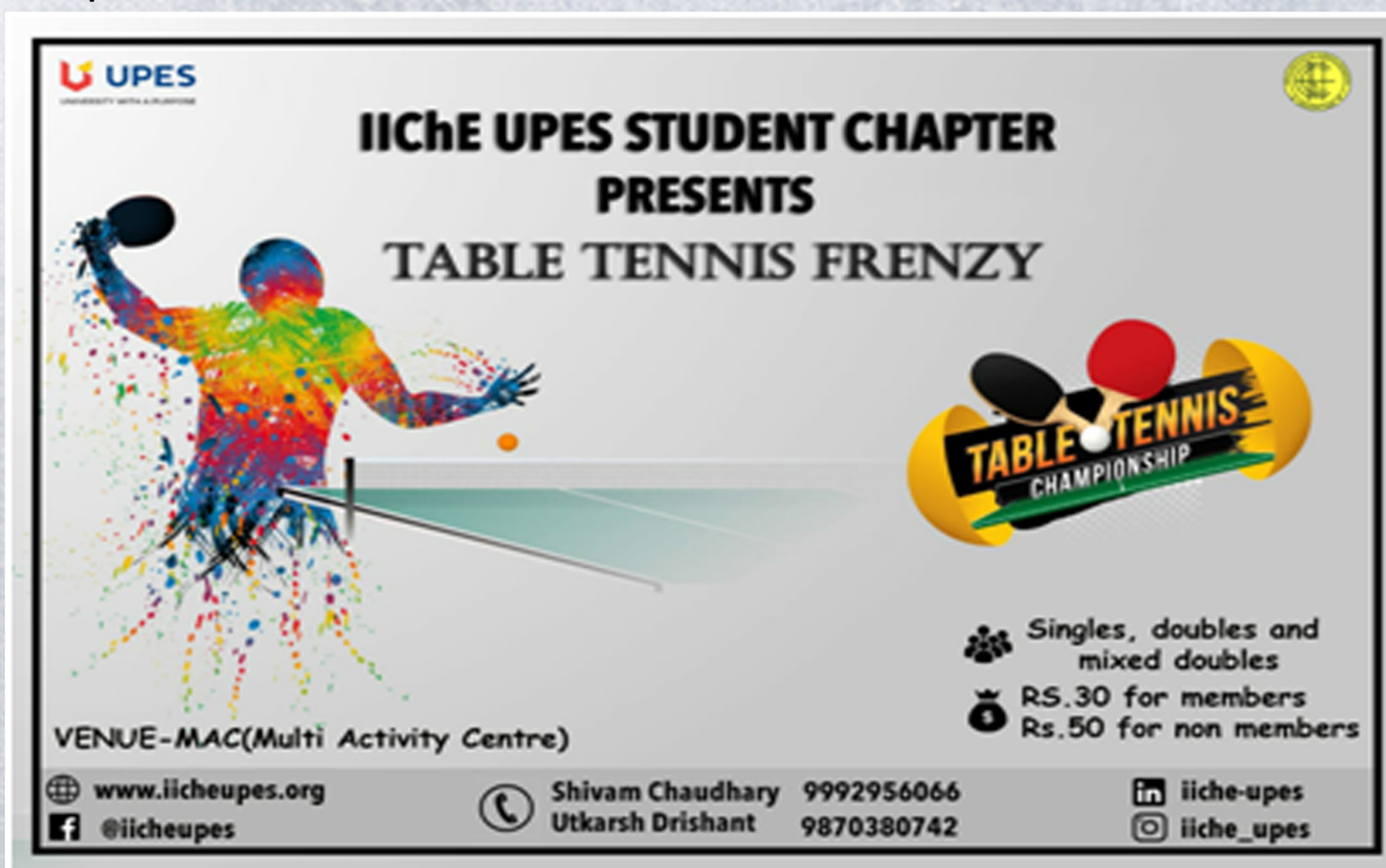




# MELA

## Table-tennis Frenzy

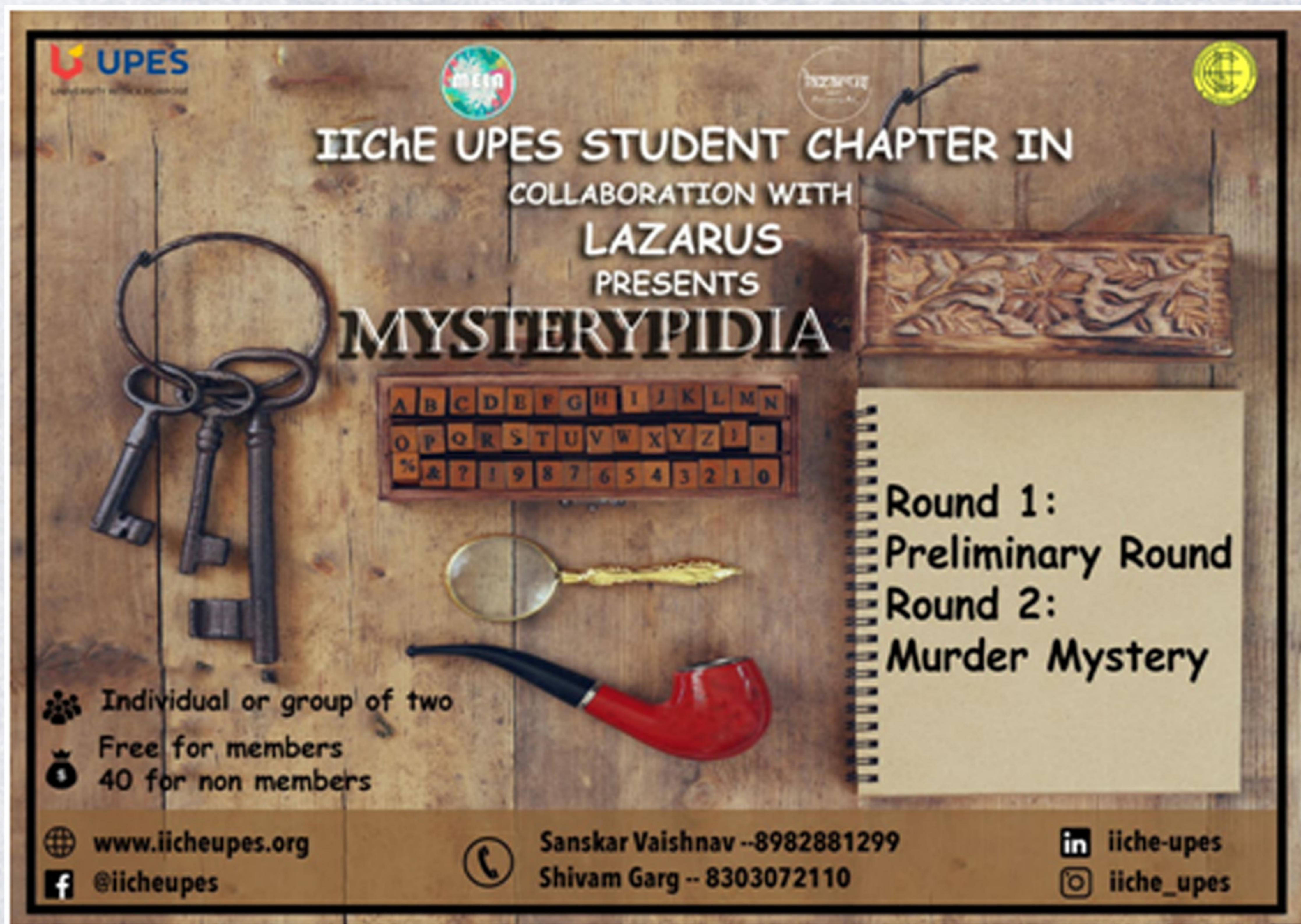
It was the sports event organized by IICHe UPES Student Chapter in collaboration with Lazarus Performing Arts. In this, the participants had to playtable tennis according to the professional There were both men's and women's singles and doubles as well as mix doubles. Students participated individually as well as in the group of two.



## Mysterypedia

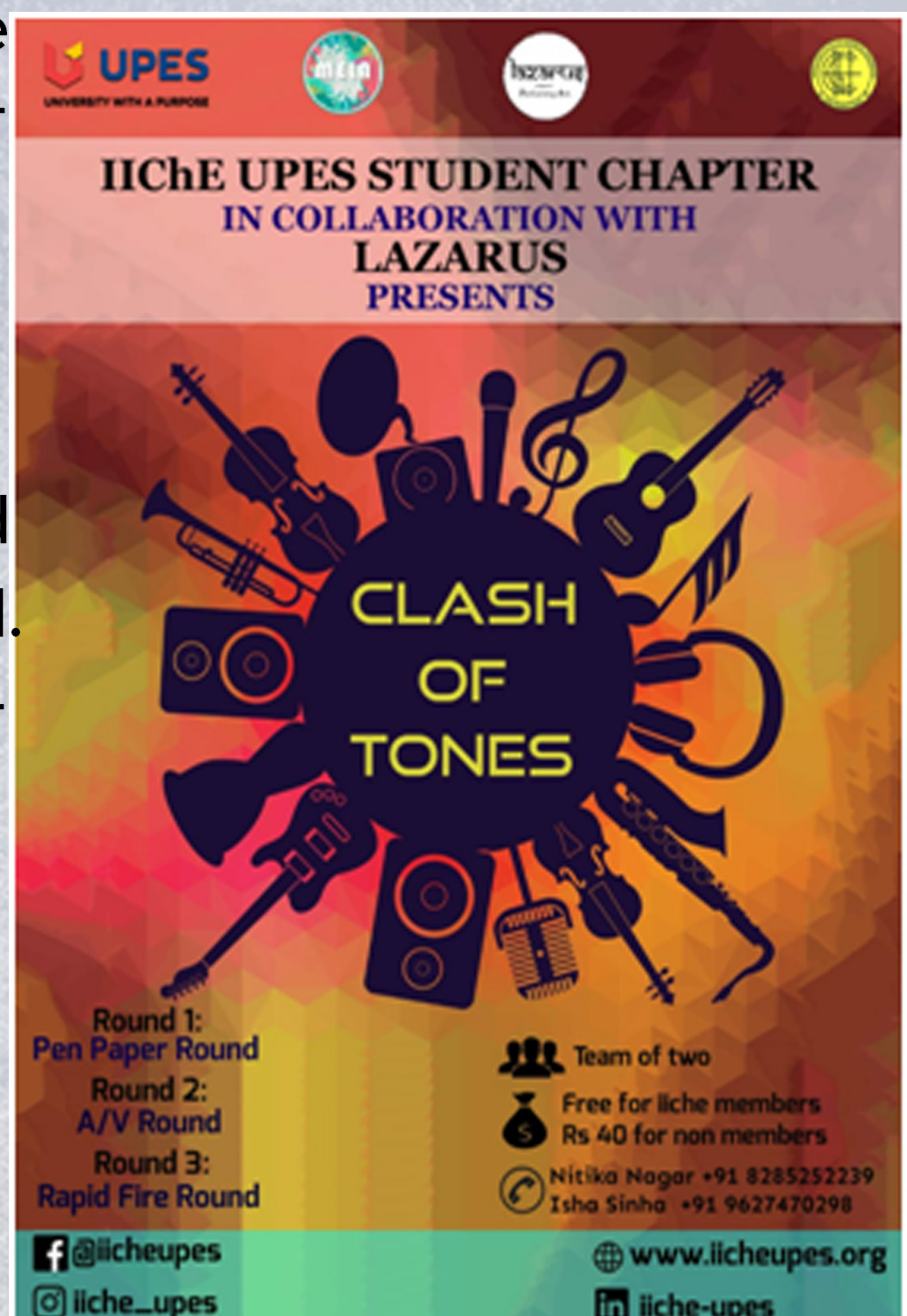
The mystery is something that cannot be deciphered or understood, but people try to understand it. Mystery comes along with fun. IICHe Student Chapter in collaboration with Lazarus Performing Arts organized the fun event 'MYSTERYPIDIA' under the canopy of "MELA". It was a two-round event. In the first round, the participants had to solve some riddles, and in the second round, they were asked to solve a murder case and find the murderer.





## Clash of Tones

It was a fun event organized by IICHe Student Chapter in collab with Lazarus performing Arts. This event captivated music lovers. It is believed that without music, life would be a mistake. This event comprised of three rounds. The the first round was the preliminary round where the participants were asked to answer a few questions, and round two was an audiovisual round & round three was a rapid-fire round. This event tested the musical knowledge of the participating students.





# Craftoholic

Art helps us to speak, where words are unable to explain. With this protocol IIChe Student Chapter in collaboration with Lazarus Performing Arts conducted, a fun event titled 'CRAFTOHOLIC'.

This event was organized in two rounds. In the first round, participants showcased their Art and Craft skills. . And in the the participants were asked to craft or draw their ideas. It stimulated their imagination, reduced stress, and boosted their problem-solving skills.

**UPES**  
UNIVERSITY WITH A PURPOSE

**IIChe UPES STUDENT CHAPTER**  
IN COLLABORATION WITH  
**LAZARUS**  
PRESENTS  
**CRAFTOHOLIC**

**Round 1**  
Showcase your Art

**Round 2**  
Craft or draw your idea

Free for iiche members  
Rs 40 for non members

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Mradul Sharma +91 7037822081

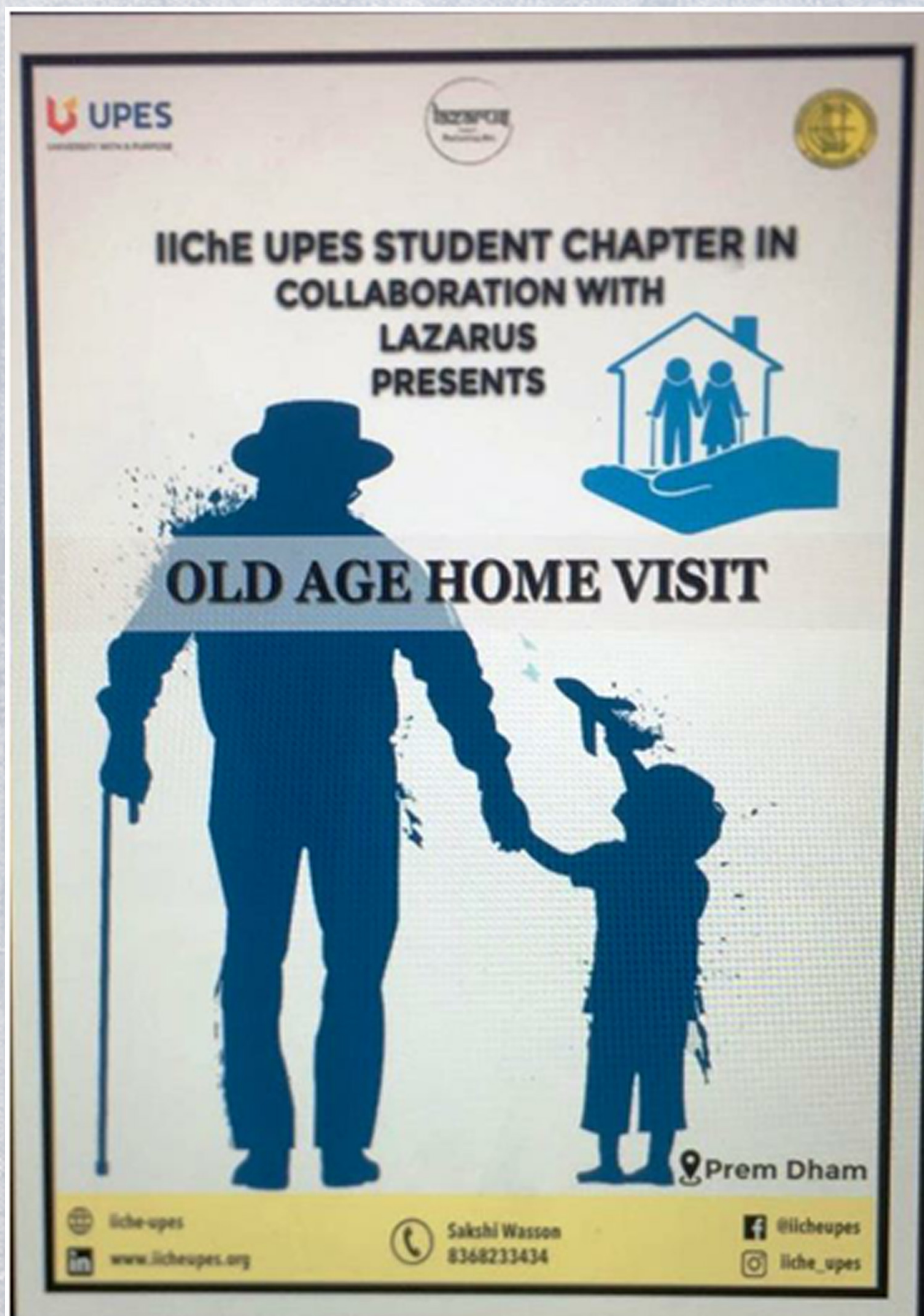
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# Old Age Home Visit

It was an event held under the guidance of the CSR Committee of IICHe UPES Student Chapter in collaboration with the Lazarus Performing Arts. The volunteers visited the PremDham Old Age Home. We were happy to see the camaraderie among the inmates. This day was indeed a wonderful day for all the students who who volunteered to visit the old age home. We learned that life is too short to anticipate things and realized our responsibility towards our parents and grandparents.





# Advances in Chemical Engineering (Day 01)

The chemical engineering department along with the R & D centre of UPES, Deheradun sponsored by DST (SERB), UCOST and UPES R&D had organized a conference, "Advances in Chemical Engineering (AdChE)" from the 5th to the 7th of February, 2020. With the aim to discuss the advancements in the field with the main areas of discussion being Alternate Energy Sources, Bio molecular and Bio-chemical Engineering, Chemical Reaction and Reactor Engineering, Computational Fluid Dynamics, Environmental Science, Gas Engineering, Materials Science, Modeling Simulation and Optimization, Polymer Science and Engineering, Process Design and Control, Petroleum and Petrochemicals, to name some of them.

The day started on a positive note with the opening ceremony which had distinguished personalities from the University. Prof Santosh K. Gupta as the inaugural speaker. The inauguration ceremony was graced with the presence of Padma Vibushan awardee Prof. MM Sharma (first Indian engineer to be elected as a Fellow of the Royal Society (FRS) ), the keynote speaker where he briefly showed how fundamental chemical engineering is in all processes. Throughout his presentation he successfully convinced all the guests that all the new age fashionable technologies have fundamental chemical engineering concepts as their basis. The day then began with the set of distinguished lecture series with Prof. J B Joshi (recipient of several awards and honours, e.g., the Padma Bhushan, the Amar-Dye-Chem Award for Excellence in Research and Development for persons under 35 years age (IChE), 1989) being the first speaker of the house. The topic of his presentation was "Prosperity of bottom pyramid" in which he briefly spoke about the ways through which science and technology can improve the standard of living at the bottom pyramid and solve societal issues. Through his presentation he successfully addressed the problems that farmers face on a daily basis and how basic science and technology help solving them to a large extent.



The next session of the day was delivered by Prof. Rakesh Agarwal (Winthrop E. Stone Distinguished Professor in the Davidson School of Chemical Engineering at Purdue University). The main question that he put forth through his presentation is why we should use renewable carbon sources. He further stressed on the use of renewable energy sources extensively for developments since they are sustainable. These renewable sources of energy can be used in industries in the long run as well to enhance economy. The last session of the day marked the presentations of different papers and posters where students from different colleges and universities from all around the globe to showcase their talents in their field of research and interests.



**Department of Chemical Engineering, UPES**

**Presents**

**An International Conference  
on  
"ADVANCES IN CHEMICAL ENGINEERING-2020"  
(AdChE-2020)**

**5 – 7 February 2020**

[www.adche2020.com](http://www.adche2020.com)

**UNIVERSITY OF PETROLEUM & ENERGY STUDIES**  
Bidholi, via Prem Nagar, Dehradun – 248007, Uttarakhand, India



# Advances in Chemical Engineering (Day 02)

The second day of the AdChE conference began with the Distinguished Lecture Series in which the first speaker was Prof. Jayesh R Bellare( a Fellow of the National Academy of Science, India (NASI), the Indian National Academy of Engineering, the Maharashtra Academy of Sciences and the Electron Microscopy Society of India.) with the topic “**Role of nano technology in Homeopathy**”.

This topic successfully intrigued all distinguished guests and delegates since he spoke about how chemical engineering is used and can be used to develop homeopathic medicines which is way better than the allopathic ones and may have lesser side effects in the long run. His lecture was followed by Prof. Aniruddha B Pandit (Vice-Chancellor at the Institute of Chemical Technology (ICT), Mumbai. Prof. Pandit earned his B. Tech. (Chem. Engg.,) from IT, BHU in 1980 and his Ph.D. from UDCT, Mumbai, now ICT, Mumbai) who spoke on treatment of **alkyl resin wastewater for re-use opportunities**.

Through his presentation he was successful in defining the problem of the decade pertaining to the generation of a lot of water which cannot be reused. He clearly showed us how the solutions to such problems lay in fundamental chemical engineering and how use of the basic concepts can lead to the saving of a billion dollars and improve societal issues. The Lecture series commenced after a short tea break with the lecture of Prof. Yogesh M Joshi (joined the Benjamin Levich Institute, New York for post-doctoral studies. Dr Joshi joined the Department of Chemical Engineering, Indian Institute of Technology Kanpur in 2004, where, presently, he is a Professor). The topic of his presentation was a rather interesting one which dealt with the **different shades of Thixotropy**.



The fourth lecture of the day was given by Prof. Deepak Kunzru (Distinguished Professor at the School of Engineering and Applied Science, Ahmadabad University since July 2016 and also the Dean, Graduate School & Research). The senior professor that he is, his topic **“Heterogeneous Catalytic Reactions in Monolith Reactors”** gave us a detailed understanding of what monoliths are. Through his presentation he was also successful in showing us how economical can certain processes be if the right and most suitable technologies are developed.

Post lunch session commenced with the lecture of Prof. Sadhan C Jana( Benjamin Franklin Goodrich Endowed Chair and Professor in the Department of Polymer Engineering at the University of Akron). The topic of his presentation was **“High Surface Area Polymeric Template Materials: Design, Performance and Applications”**. The main problems that he addressed were air quality around the globe. He also proposed on the prevention of the spread of corona virus using state of the art masks which is designed by his group. The last lecture of the series for the day was given by **Prof. Vilas G. Gaikar** Distinguished Professor of Chemical Engineering, Institute of Chemical Technology, Mumbai. Prior to this, he was the First Vice-Chancellor of Dr. Babasaheb Ambedkar Technological University (BATU), Maharashtra.

Through his presentation he talked about the **conversion of carbon dioxide to methanol by solar photo catalysis**. He designed flat plate reactors for the photocatalytic reaction and comparison of the results with that of the slurry photocatalytic reactor. It is observed that the slurry reactors give better conversion and photo efficiency compared to a flat plate reactor. The day ended on a good note with a number of ongoing paper and poster presentations with a number of distinguished plenary speakers and delegates from different parts of the nation showcasing bits and glimpses of their handwork and research.



# Advances in Chemical Engineering (Day 03)

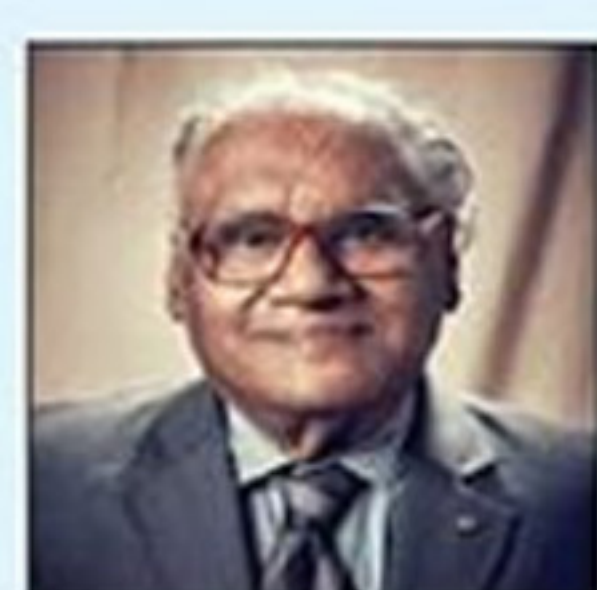
Day 3 of the AdChE-2020 conference began with the lecture of Prof. Devang V. Khakar( Professor of Chemical Engineering at IIT Bombay), who briefly spoke about discrete element methods and how are they used. The second lecture of the day was delivered by Prof. Madhumita B. Ray( Professor of Chemical and Biochemical Engineering Department at Western University, London, Ontario, Canada and the Director of the Western Water Centre.) The topic of her presentation was “ Management of water Resources: Treatment, Resources, Recovery, Recycling and source water Production”. Through her presentation she addressed the global water related issue and had predicted that the future might not witness wars fought over oil but will definitely face wars fought over water and such issues should be looked up to with utmost urgency.

She also briefly specified that India has just 5 years to deal with and solve the water crisis. She also spoke about different developing technologies, worldwide for the treatment of water. Lecture 3 of the day was delivered by Prof. Ajay K. Ray( Chair of the Chemical and Biochemical Engineering Department at the University of Western Ontario (UWO, now Western University), London, Ontario, Canada). The topic of his presentation was “ Simulated moving bed systems and its various modifications for difficult and reactive separation).



Through his presentation he had enlightened the audience about different advancing technologies such as SMB Adsorptive Separation, advantages of chromatography, limitations of batch chromatography to name some of them. He also spoke of a number of challenges faced by such technologies. Post lunch, the conference witnessed the last set of paper and poster competition on various areas of research. The day ended with the valedictory ceremony with closing speech from the chancellor of the university, Prof. S K Gupta and the HOD Prof. P Vijay along with the award winners of the paper and poster competitions being declared. The organizing committee and the administration promised to be back with AdChE which would be bigger and better, next time.

### Our Patrons



**Chief Patron**  
**Bharat Ratna Awardee Prof. C. N. R. Rao**  
Linus Pauling Research Professor,  
JNCASR, Bengaluru, India



**Patron (Inaugural Lecture)**  
**Padma Vibhushan Awardee Prof. M. M. Sharma**  
Emeritus Professor, Institute of Chemical  
Technology, Mumbai, India

### Our Eminent Speakers



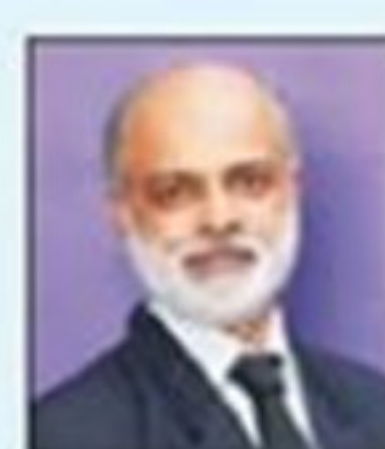
**Padma Vibhushan Awardee**  
**Prof. M. M. Sharma**  
Emeritus Professor, Institute of Chemical  
Technology, Mumbai, India



**Distinguished Speaker**  
**Prof. M. S. Ananth**  
Emeritus Research Fellow at Indian  
Institute of Technology Madras, India  
Former Director of IIT Madras, India



**Distinguished Speaker**  
**Prof. Rakesh Agarwal**  
Winthrop E. Stone Distinguished Professor  
of Chemical Engineering,  
Purdue University, USA



**Distinguished Speaker**  
**Prof. Anirudh B. Pandit**  
UGC Research Scientist and Professor,  
Institute of Chemical Technology,  
Mumbai, India



**Distinguished Speaker**  
**Prof. Sadhan C. Jana**  
Department of Polymer Engineering,  
Chair and Benjamin Franklin Goodrich  
Endowed Professor,  
University of Akron, USA

### Our Eminent Speakers



**Distinguished Speaker**  
**Prof. Ashok Mishra**  
NASI-Platinum Jubilee Chair  
Distinguished Professor,  
Indian Institute of Science,  
Bengaluru, India



**Distinguished Speaker**  
**Prof. Vilas G. Gaikar**  
Distinguished Bharat Petroleum Chair Professor,  
Institute of Chemical Technology,  
Mumbai, India



**Distinguished Speaker**  
**Prof. K. VijayRaghavan**  
Principal Scientific Advisor  
to the Government of India



**Distinguished Speaker**  
**Prof. Ajay K. Ray**  
Professor and Head,  
Western University, London, Canada



**Distinguished Speaker**  
**Prof. Ritesh Agarwal**  
Professor, Department of Materials Science,  
University of Pennsylvania,  
Philadelphia, USA



**Distinguished Speaker**  
**Prof. Deepak Kunzru**  
Distinguished Professor,  
Ahmedabad University, Ahmedabad,  
(formerly Chevron Chair Professor,  
Indian Institute of Technology Kanpur) India



**Distinguished Speaker**  
**Prof. Madhumita B. Ray**  
Professor,  
Western University, London, Canada



**Distinguished Speaker**  
**Prof. Devang V. Khakhar**  
Director,  
Indian Institute of Technology Bombay,  
Mumbai, India



**Distinguished Speaker**  
**Prof. K. S. Gandhi**  
Emeritus Professor,  
Indian Institute of Science,  
Bengaluru, India



**Distinguished Speaker**  
**Prof. Yogesh M. Joshi**  
C. V. Seshadri Chair Professor,  
Indian Institute of Technology  
Kanpur, India

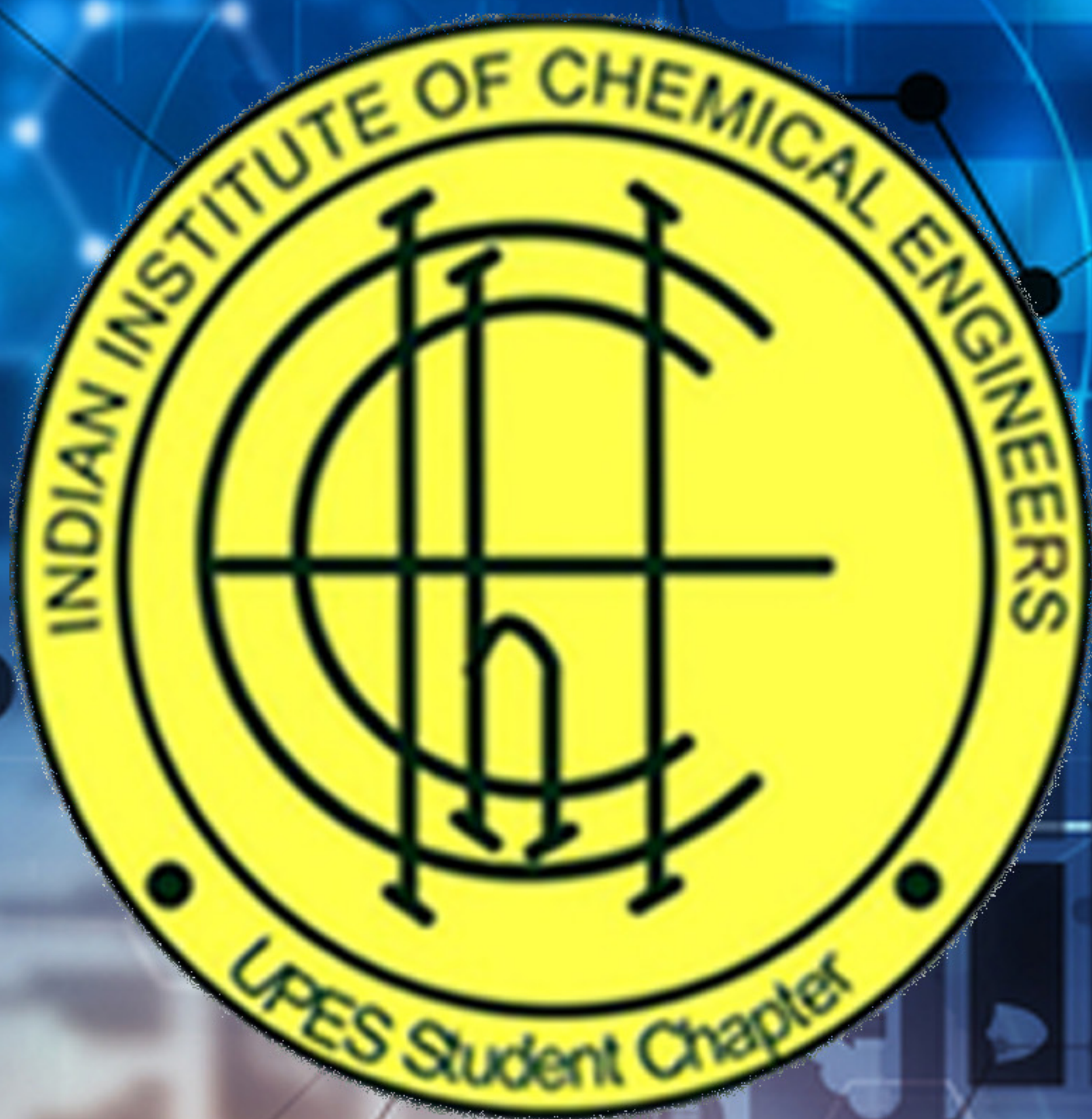


**Distinguished Speaker**  
**Prof. Jayesh R. Bellare**  
Institute Chair Professor,  
Indian Institute of Technology Bombay,  
Mumbai, India



**Distinguished Speaker**  
**Prof. J. B. Joshi**  
J. C. Bose Fellow  
Emeritus Professor,  
Institute of Chemical Technology,  
Mumbai, India





**IIChE UPES STUDENT CHAPTER**  
**Department of Chemical Engineering**  
**University of Petroleum Energy Studies**  
**Energy acres, Bidholi, Dehradun, Uttarakhand-248007**

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