
UPES
UNIVERSITY WITH A PURPOSE
Indian Institute of Chemical Engineers
UPES
DEHRADUN
IIChE UPES
OFFICIAL
MAGAZINE
(2018-2019)
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ABOUT

Indian Institute of Chemical Engineers was introduced as a student chapter at the University of Petroleum and Energy Studies in 2012. It enables students to interact with the pioneers of the chemical industry and transform them into professionals. The aim of the chapter is to promote the advancement of Chemical Engineering Science and draw up a code of ethics in the profession, to maintain and widen contacts with chemical engineering professionals in India and abroad, ensure regular exchange of ideas with the other national and international professional institutes in this field, to act as an authoritative body on matters about the teaching and the profession of chemical engineering, proceedings of seminars symposia/ workshops, and at last to conduct. meetings and transact business on administrative, academic and technical matters relating to the profession.

Dear Reader,

Before we begin, I would like to thank you all from heart for taking your time to recognize our efforts, simply by holding a copy of 'The Chemical Lifestyle' in your hands. This magazine is the outcome of the efforts of the entire pool of IIChE UPES Student Chapter, who have played some part in making this magazine from an idea in our head to a reality.

Since its inception, IIChE UPES Student Chapter has always been a vital part into building the University's Chemical Circle. It has been immensely successful in helping people alongside their career paths with immense networking and connectivity platforms. All of this would not have been possible without the constantly striving workforce of the chapter: Playing a pivotal role into making the chapter what it is today. This new edition of 'The Chemical Lifestyle' briefly glances into the latest trends in the Chemical Engineering Domain, effectively helping one, keep up the pace with the current trends in the Industry. With a completely refreshed roadmap, your journey with this magazine is designed to be more of an interaction than a monologue. We have gone to painstaking ends to make sure that this edition of 'The Chemical Lifestyle' appeals to you the same way the previous edition did, if not more. We sincerely hope that you will find this journey with 'The Chemical Lifestyle' informative and enjoyable. And as always: "Dream big; No matter how far away the sky seems to be."

With Immense Gratitude,

BM Vishal

Head – Editorial Committee (2018-2019)

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Picturesque

IIChE organized an online event on the occasion of Independence Day. In this event, students had posted pictures that represented their sense of freedom and patriotism and also wrote quotes that defined their pictures. RS Unnikrishnan (B. Des) was the winner and Devansh Dixit (B. Tech CE+RP, 2017-21) was runner-up of this event.

Techville

The main aim of this event was to teach the students the importance of time. It was a technical event having two rounds in which the participant had to take a quiz on general aptitude and the second round was an extempore. It was won by Vishal Manikandan (B. Tech CE+RP, 2016-20), and Maitree Jha (B. Tech CE+RP, 2016-20) was the runner up.

Donation Drive

A donation drive is a wonderful way to give back to the community. It not only helps the ones in need, but it can also enable to promote the idea of the giving culture amongst a group of people. It was organized from the 21st to the 25th of January. people contributed in a very good number for this noble cause, and the only aim of the chapter was to bring a smile on the face of the people in need.

Deja Vu

As we all know that books are our best friend and this phrase stands true for this event. This event was held under the banner of MELA. This event was related to literature where the first round was an interactive story making round and in the second round, there was a quiz

regarding various authors and books. It was won by Gangadharan G (B. Des) and Devraj Devnarayan (B. Tech CE+RP, 2016-20) was the runner up.

Music Maestro

It was an event related to Music under the canopy of MELA (2019). The first and second rounds were quiz and Audio/visual rounds respectively while the teams qualified for the third round had to go through a rapid-fire round. It was won by Hemendra Dave & Devraja Devnarayan (B. Tech CE+RP, 2016-20) whereas Yash Chaturvedi & Soumya Verma (B. Tech CE+RP, 2017-21) were the runner ups.

Endgame

It was a fun event under MELA. It was a two-round event based on the Marvel and DC comics. The first round was a Quiz, based on the comics while the second round was an audiovisual buzzer round which decided the winners of the event. It was won by Yash Karanwal & Ravyant Saini and Anmol Kumar & Aman Singh (B. Tech CSE- AI, 2018-22) were the runner ups.

Prezento 2.0

It was the technical event of a paper presentation on any relevant topic related to Chemical Engineering. This event was also held by our chapter during Ignite. This event was won by D. Devanarayan, Ishaat (B. Tech CE+RP, 2016-20) and the runner up was Neha Saxena, Numair (B. Tech CE+RP, 2017-21).

Potter Head's Up

This event was organized and headed by second-year students. Many students participated in the event. The event was based on the famous fantasy series and books of Harry Potter. The first round was a quiz based on the movies and books further the second round was audiovisual. It was won by Sakshi Sankar, Mythili Nair & Muskan Goenka (B. Des) and Abhishek Jain & Ankush Sharma (B. Tech CSE, 2018-22) were the runner ups.

Edupedia 2.0

The main motive of this event was to relive the school day where students panic during board exams. This event made it clear that school is the best stage of one's life. The event was a quiz based on general knowledge, aptitude, and vocabulary. It was won by Nishtha Grover & Raywant Sahni.

Smashers

Not only studying is important but the sports are equally important. It teaches us teamwork and loyalty. The fest started with an event of Badminton including Men's Doubles, Women's Single, and Mix Doubles events. It was won by SuyashPateriya, Bhavik, Avantika Dalal, Karan Sharma whereas Saksham, Shraddha Mishra, Harishankar Bhatt were runner ups.

Placement Talk

Placement talk helped the students to clear their doubts regarding placement interviews. It was an interactive session between the students of the branch and the experienced seniors who have been placed in various companies in the past year.

Techno-Fun

It was an interesting event that tested the all-round abilities of the participant. The first round was a general knowledge quiz and in the second round, the participants had to play a fun game of Pictionary. It was won by Kanchan Gusain (B. Tech CE+RP, 2016-20) and Shivansh Baurai (B. Tech CE+RP, 2017-21) was the runner up.

Genesis Poster Presentation

This event gave students an outlet to present their work in the form of a poster and describe the ways that contribute to the world in a better way in the form of their posters. It was won by Aman Bhatla, Prathamesh Singh, Shubha Singhala (B. Tech CE+RP, 2017-21) and Shravya Mishra, Trisha Chakraborty (B. Tech CE+RP, 2017-21) were the runner ups.

Case Study

This was a technical event where the participants got a case study and then they had to present their views in front of the jury. It must have helped them to think and understand industry-related problems in the future. It was won by Hemendra Dave, Devraja Devnarayan and Nitika Nagar, Praveen Kumar, Dayanidy and Shivank Negi (B. Tech CE+RP, 2016-20) were the runner ups.

Discuss-It-Out 2.0

Discussion is the only way by which one gets a deep knowledge of the subject. Such a similar event was held where the participants were divided into small groups for the primary discussion while the selected students went for the final discussion on the given topic. It was won by Shivam Sharma(B.Tech CE+RP , 2017-21) and Spraha Kulshreshtha(B.Tech CE+RP , 2017-21) was the runner up.

Dopamined!- Fun Facts to keep your senses triggered

1.Turbomachines are developing renewable energy systems and energy-saving options.

Turbomachines play a significant role in some key sectors as aircraft and marine propulsion, power production, heat ventilation and air conditioning and chemical processing. The success of dynamic machines is connected to the wide variety of demands that they can cover, together with their compactness, reliability and availability.
In this respect, such machines are the favourite candidate to support an efficient exploitation of some renewable energy sources and the development of energy-saving systems. Innovative plants require machines which can work with new fluids (e.g. Organic Rankine Cycle systems) or in new operating conditions (e.g. high-flexibility or new pressure ratios) and it poses new challenging aspects in the preliminary machinery design. Moreover, another challenging aspect is how innovative techniques (e.g. high-integrated design systems, 3D printing) can be integrated in the design process and how much they can affect the machine development and final performance. Two case studies are presented to focus the attention on such aspects, discussing preliminary design and prototyping of “unconventional” turbomachines.

2. Why Does Cilantro Taste Like Soap?

The link between genetics and cilantro flavour was first identified when researchers found 80% of identical twins share a like or dislike of the herb. Further investigation led to the identification of the gene *OR6A2* , an olfactory receptor gene that makes a person sensitive to aldehydes , the organic compounds responsible for cilantro flavour. People who express the gene find the smell of unsaturated aldehydes offensive. Additionally, they can't smell the pleasant aromatic compounds. Other genes also affect the senses of smell and taste. For example, having a gene that codes for increased perception of bitterness also contributes to a dislike for cilantro.

3.Didymium- An element or not?

Didymium was an element on Dmitri Mendeleev 's original periodic table. Today, didymium is not an element but is instead a mixture of rare earth elements. These elements had not been separated from each other in Mendeleev's time. Didymium mainly consists of praseodymium and neodymium. There are reports that didymium glass was used to transmit Morse Code messages across battlefields in World War I. The glass made it so the brightness of lamplight would not appear to be noticeably changing to most viewers, but would enable a receiver using filtered binoculars to see the on/off code in the light absorption bands.

4. Famed chemist Glenn Seaborg was the only person who could write his address in chemical elements

He would write Sg, Lr, Bk, Cf, Am. That's Seaborgium (Sg), named after Seaborg himself; Lawrencium (Lr), named after the Lawrence Berkeley National Laboratory; Berkelium (Bk), named after the city of Berkeley, the home of UC Berkeley; Californium (Cf), named after the state of California; Americium (Am), named after America.

5. Every hydrogen atom in your body is likely 13.5 billion years old because they were created at the birth of the universe

At ground zero, during the Universe's singularity, the very first chemical element was hydrogen. All the other followed by fusing hydrogen into helium, which then fused into carbon and so on. Approximately 73% of the mass of the visible universe is in the form of hydrogen. Helium makes up about 25% of the mass, and everything else represents only 2%. By mass, hydrogen and helium combined make up less than 1% of the Earth.

6. The First Element Ever Created.

The first Nature-made elements were helium and hydrogen. They formed after Big Bang, within an extremely hot environment, as a result of a combination of subatomic particles. Quarks combined, originating protons and neutrons, which got together giving nuclei. Then, electrons eventually combined with nuclei, creating the first hydrogen and helium atoms. As for the first human-made element, the answer would be technetium. **Technetium** is the first man-made element.

7. Gold and Copper- The two non-silvery Metals

A metal is an element that readily forms positive ions (cations) and has metallic bonds. These elements have electrons that are loosely held to the atoms, and will readily transfer them. This is why metals are great electrical and thermal conductors — because the electrons move energy. Most metals' electrons reflect colours equally, so the sun's light is reflected as white. Gold and copper, however, happen to absorb blue and violet light, leaving yellow light. It's worth noting here that copper is also the only metal that is naturally antibacterial.

Micronization of BCS II drugs using liquid antisolvent recrystallization

Group Number: 2

PRIMARY DETAILS

Project Title	**Micronization of BCS II drugs using liquid antisolvent recrystallization**
Guide/ **Co-Guide** **Name**	Mr. Amit Kumar Thakur Dr.Rahul Kumar Dr.Pranava Chaudhari

Student Details	
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Signature of the Guide/Co Guide	

I. INTRODUCTION:

Drug dissolution involves transfer of solid drug particle into the solution in accompanied fluid. To improve the solubility of materials, the size of a material can be improved through size decrease gear[1]. For instance, granular sugar that has bigger particles will have better stream yet poor disintegration. Powdered sugar with smaller particles will have poor flow however better disintegration.

Molecule size decrease and dissemination is extremely basic to smaller particles that are sensitive to overpressure. At the point when particles are smaller, they are more averse to lock together during a compression procedure[1]. The properties of compressibility improve when there is an expansion in molecule size. At the point when there is a higher level of a smaller particles, the lubricant required increments. smaller particles additionally decline disintegration time yet it shows increment in dissolution [8].

To improve quality. Numerous items are affected by heat and can be delicate to changes in room temperature. This can bring about poor pressure, flow, and discharge conditions [5]. Additional fine particles can bring about dusty conditions. High rates of fine particles can bring about residue that expands wear, diminishes yield, more molecule isolation and expanded tablet absconds [7]. This can bring about higher working expenses and will haveeffects on drug quality. Molecule size decrease can have a critical financial effect and advancement in size reductionequipment innovation lead to effectiveness[2].

The first drug with which would find the enhancement of drug solubility by adopting the antisolvent crystallization technique in order to precipitate the drug by using water as an antisolvent. We would also find the significant effects of parameters like temperature, ultrasonic effects, mixing rate etc that affects the antisolvent crystallization of the drug[1]–[3].

II. BACKGROUND:

There are lot of traditional techniques for particle size reduction like milling, attrition etc. Aqueous solubility governs the extent of drug dissolution in a solution under prevailing

conditions[4]. The solubility and dissolution rate are the most important factors in pharmaceutical industry. There are a lot of challenges being faced in pharmaceuticals industry whenever the topic of particle size reflects upfront. Many of drugs falls under Bio-pharmaceutics Classification System (BCS) II category [6]. High membrane permeability and low aqueous solubility are the characteristics of this class of drugs [7]. For this class of drugs, the dissolution step is rate determining step. So, measures are taken in order to enhance the solubility rate and the particle size reduction[5].

III. LITERATURE REVIEW:

This project reflects a major significance in the pharmaceutical industry. Micronization of pharmaceutical compounds is necessary to enhance their bioavailability and to design proper drug delivery systems. The development of a drug delivery system is a rapidly expanding subsection of the pharmaceutical market and the current methods frequently require the technologies for particle size reduction. To achieve these goals, researchers have strived for the improvement of the physical characteristics and formulation of drugs, which include the studies on nanotechnology in regards to pharmaceutical application.

The requirements for the project are different drugs with low solubility in water in order for water to work as an antisolvent.

As per the topic, the main aim is to focus on particle size reduction. So, in order to accomplish that the following methodology will be followed,

The selected drug is to first dissolve in polar and non-polar solvents respectively to check its solubility in polar and non-polar solvents. A solution of ethanol and drug is to be prepared and later filtered with the sole motive of having a saturated solution[5]. This saturated solution of drug obtained has to be dissolved with a liquid antisolvent water for antisolvent recrystallization to take place. This would lead to the precipitation of the dissolved drug particles in ethanol[3].

Interview with Mr. Sparsh

Sparsh Jain

Batch 2016-20

{Placed in Reliance Industries Ltd.}

1- Before proceeding towards technical questions, I would like to ask you about your experience in UPES?

Ans- Life at UPES was one of the most glorious phases of my journey. The atmosphere of UPES makes it the best place to learn. It is one of the best private universities which provides highly advanced infrastructure and this helped me to gain deep knowledge related to my field. The curriculum is designed in such a manner that it provides you good industry-related knowledge. The support that college empowers the students for their higher studies, and research opportunities is very admirable. The faculty gave me full support in every problem. UPES is the place that builds a leader in you and I can say, that my experience in UPES was surely a wonderful one.

2- How did you manage your semesters along your projects, research papers, and other activities?

Ans- It depends on the student's capability but also it is necessary to be truthful to yourself what you are doing. I used to have a time table. Generally, students engage in extracurricular activities a lot and almost forget about the studies and in the end, they face difficulty in understanding the subjects. For this, I used to give one and a half-hour daily for revision of what was taught in the class, this helped me to avoid overburdening of subjects at the end. I used to do project related work in college itself, for this I had to manage the classes accordingly.

3- What made you interested in applying for this specific company and preferring a job over higher education?

Ans- I was selected as an intern in Reliance Industries Ltd. and received a PPO from there. At first, I was only focused on having a good performance in the internship and Reliance was the company I wanted to be a part of. During my internship, I came across the culture at Reliance which attracted me the most, and also it is a big name in the market. On the other hand, I want to gain working experience in plant jobs so that I can understand in what type of chemical industry I want to be a part of in the future, as I have a keen interest in EPC companies too. Doing this job will also help me to understand and allow me to choose whether I want to study management or Technical in the future. That is why I consider doing a job over higher studies.

4- How was your feeling when you had the offer letter from the company in your hands?

Ans- Having an offer letter in your hands feels like that all the hard work you did for the company you wanted is paid off. The feeling was overwhelming. When I received it at first, I was like OK I got the job but when everybody started congratulating me on being the first one to get the job and of being a part of such a big company, it felt amazing. Yes, I was very happy.

5- How do you think that this pandemic is going to help the ones in their 3rd and 4th year?

Ans- I feel this pandemic has provided all the 3rd and 4th-year students with ample of time to brush up their technical knowledge. You don't have to travel so you guys have a lot of time. Practice aptitude, clear the basic concepts, try to solve some online quizzes to check your knowledge. Apart from this, you may also develop a hobby to add to your personality. Try to convert it into the best possible time.

6- What should be the strategy for an average student to sit in the placement interviews?

Ans- According to me, you have to practice aptitude and brush up important technical concepts side by side for the first round. GD is where they will see your communication skills. Have some basic knowledge about current events and confidence. For the interview, one needs to be aware of what has been written in the resume. Have a good understanding of the projects done and most of the interviewer starts with a basic technical question and then goes to the difficult ones. But all the questions are linked to each other. Do read the important topics which mostly all interviewers ask. You can ask faculties for help and get the list of important questions to form them. Remember, you don't have to know it all but you have to know the best what you know.

Interview with Miss. Ishita

Ishita Juneja

Batch 2016-20

{Placed in McDermott}

1- Before proceeding towards technical questions, I would like to ask you about your experience in UPES?

Ans- If you talk about my journey at UPES, you should ingenuously say that my LIFE HAPPENED there.
Yes, you read it right! I have had the best of my years in the beautiful campus. When I had to do my backpack for college for the first time, I had a mish mash of feelings like Who's going to be my roommate? How would my hostel be? Will I be able to adapt? Will I be able to make friends?
But the moment I entered the campus gate and I was lost in the swarm, I never felt I was away from my home.
I would always be grateful to my teachers for mentoring and supporting me in every step from academics to my placement. I was an introvert when I entered but today I have evolved to be an ambivert and more than that a good human being. I am thankful to UPES for giving me the endless opportunities to learn, grow ,compete and succeed.
At last I would like to raise a toast to the beautiful people I met there who always encouraged me and taught me the new words of LOVE, COMPASSION , HONESTY, CONFIDENCE, PATIENCE AND SMART WORK.
Thank you for being so warm to me and preparing me for the real time world, I can't wait to soar into the world of infinite possibilities.

2- How did you manage your semesters along your projects, research papers, and other activities?

Ans- I won't lie to you as I never studied on a daily basis. But, yes I always paid attention during my classes.
I used to always delegate my time and tasks for my projects and research papers.
A note to my juniors: Its very important to do projects. Please set aside your time for it as learning practically is far better than just being theoretical.

3- What made you interested towards applying for this specific company and preferring job over higher education?

When I had my summer internship at PCBL, I would always wonder how equipment is designed, how sizing of the pipelines is done , how are the parameters being controlled and how my chemical engineering subject knowledge is crucial! So, when McDermott International gave me an opportunity to sit for the placement, I was thrilled to find out that it is one of the leading Engineering, Procurement and Construction companies across the globe and most importantly it's under my purview.
So, I choose a job over higher studies because I want to have a practical exposure of my engineering degree first.

4- How was your feeling when you had the offer letter from the company in your hands?

Ans- Just 2 words- CLOUD NINE

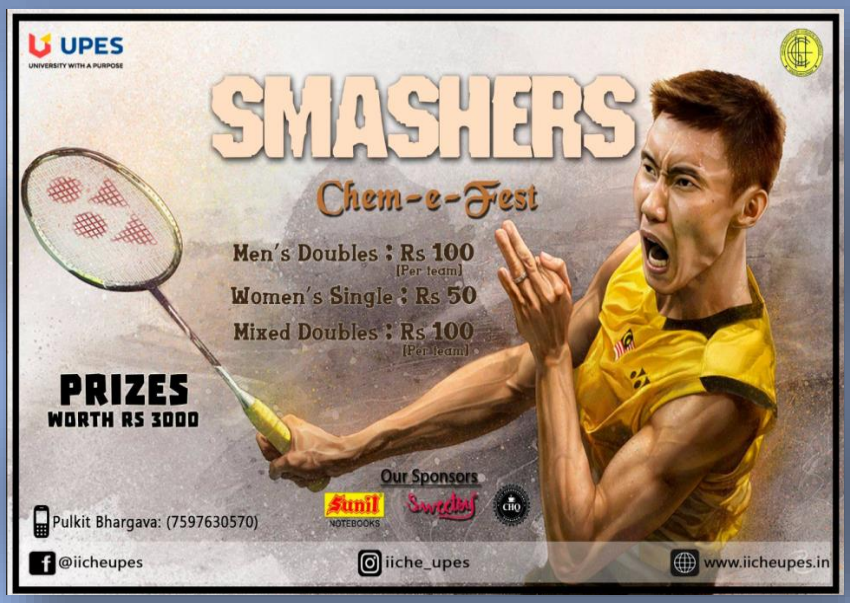
5- How should a student prepare himself/ herself for the internships or for the placements? Is only the technical knowledge required?

Ans- Yes Technical knowledge is very important if you are sitting for the core job opportunities. But your interpersonal skills are equally important. I always recommend joining UPES student Chapters for your personal growth and actively participating in the college activities. It is not only going to boost your confidence but will also prepare you for your HR rounds during your interviews.
Keep brushing your technical knowledge continuously. The Chemical Department will always help you with your doubts. Also, don't forget to practice the Aptitude from the start of 3rd year as it is going to be the first round of any company's recruitment process.

Photo Gallery

Picturesque **Music Maestro**

Edupedia 2.0



Smashers

Placement Talk