



**MANIPAL UNIVERSITY
JAIPUR**

Department of Chemical Engineering

CHEMFLENCE

Dr. Frances Arnold

Noble Laureate, Chemical Engineer

"Most Innovations are not obvious to other people at the time. You have to believe in yourself. If you've got a good idea, follow it even when others say its not"

[Know more on Page 17](#)

Bid Farewell to our first batch of 2017-2018

CONVOCATION'18

[Know more on page on 16](#)

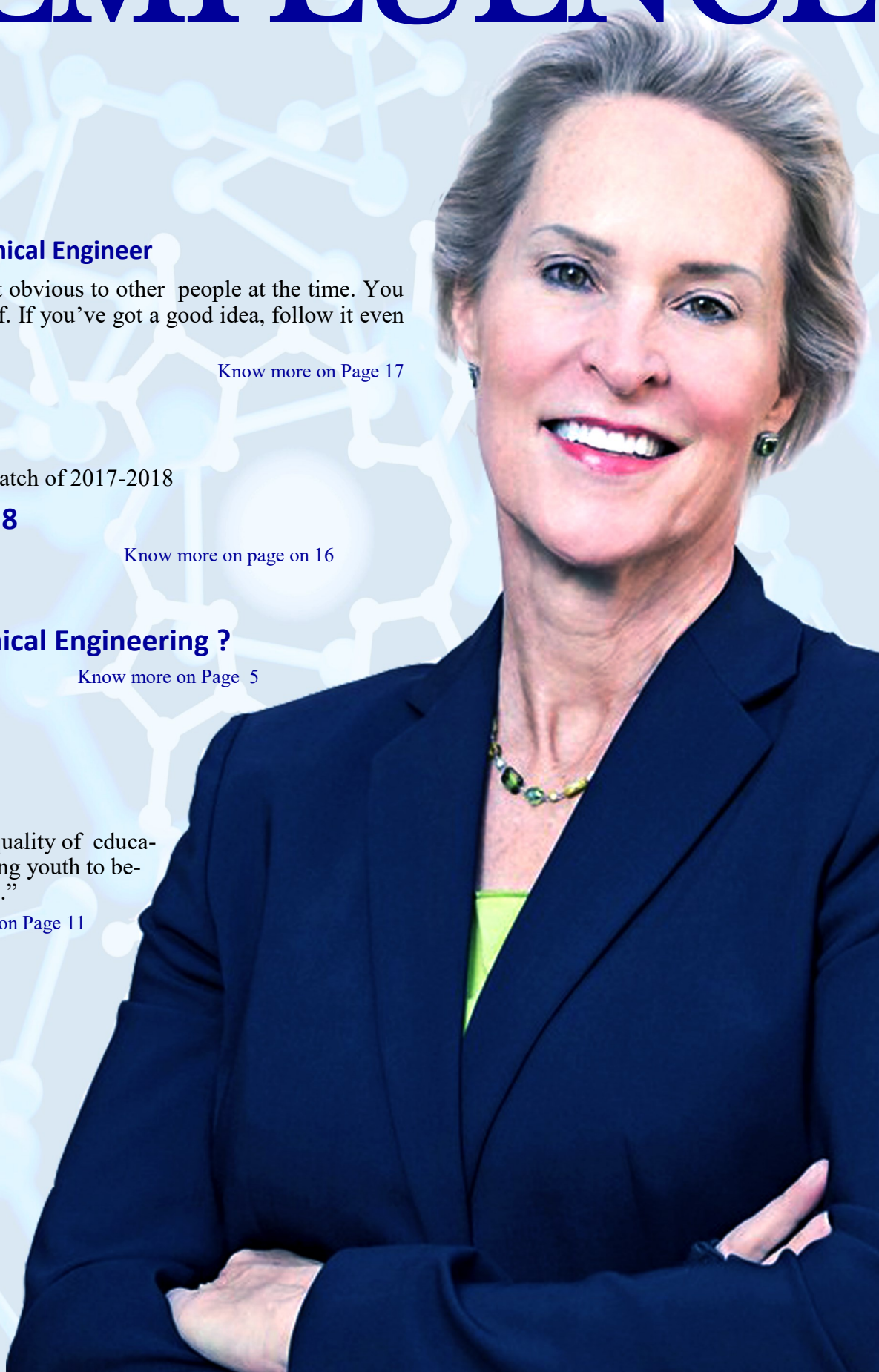
The magic of Chemical Engineering ?

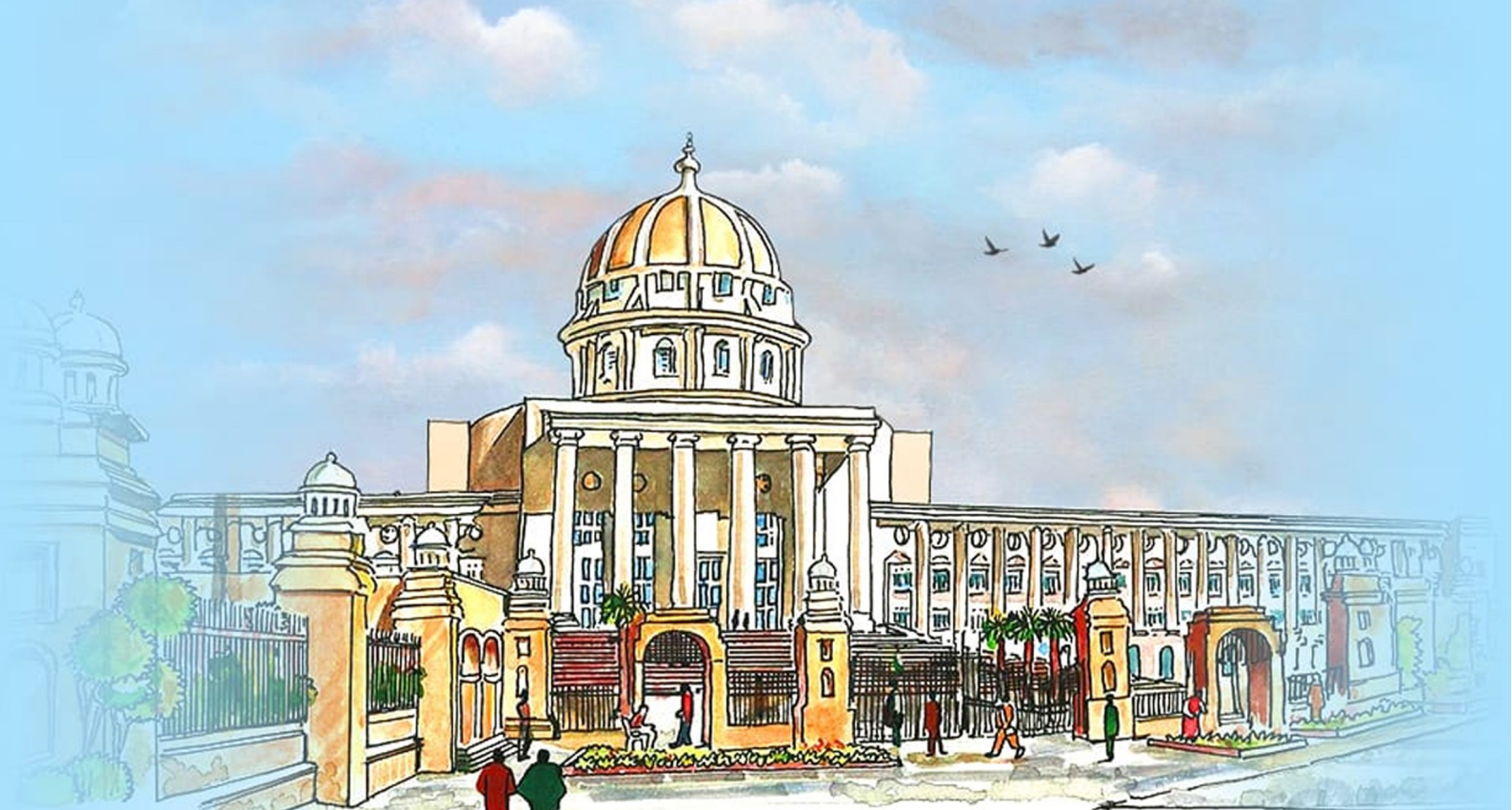
[Know more on Page 5](#)

GRAMIKSHA

"We aim to improve the quality of education in India by mobilizing youth to become educational leaders."

[Know More on Page 11](#)





ABOUT THE UNIVERSITY

The Manipal Education Group, with its heritage of excellence in higher education for over 60 years, launched Manipal University Jaipur (MUJ) in 2011. The permanent campus of the university is set up on 122 acres of land at Dehmi Kalan village near Jaipur and is by far one of the best campuses in the region. MUJ has world class infrastructure, including state-of-the-art research facilities and modern library. In line with Manipal Academy of Higher Education's legacy of providing quality education, the university uses the latest and innovative methods and technology to impart education.

The multidisciplinary university offers career-oriented courses at all levels, i.e., UG, PG and Doctoral level and across diverse streams, including Engineering, Architecture, Planning, Fashion Design, Hospitality, Allied Health Sciences, Humanities, Commerce, Management, Communication, Basic Sciences, Fashion Design and Jewellery Management and many more.

ABOUT THE DEPARTMENT

The Department of Chemical Engineering was established in 2014 at Manipal University Jaipur shortly after the university was founded. As one of the core branches, it boasts of a nascent but rich heritage. It was established by a team of highly qualified faculty members. It is a small but dynamic family of accomplished professors, instructors, eager students and research scholars. It is an institution in itself serving as an incubator for passionate minds.

THE EDITORIAL

Chemfluence, the Chemical Engineering Newsletter of Manipal University Jaipur is dedicated to spreading awareness about the achievements made by different visionaries in this department, to address everyday issues plaguing mankind. It appreciates the work done by people who believe in improving the human experience. The newsletter aims to be a celebration of all forms of talents and expression. It not only serves as a medium for holistic growth but also creates a sense of community among the teachers, students and chemical engineers at large.

We'd like to thank Manipal University Jaipur for its undue support to showcase our vision to our fellow colleagues. We'd also like to thank everyone involved for helping us come up with the design of the newsletter. We would appreciate further contribution from colleagues to our newsletter thereby helping us keep this initiative alive for a long period of time.

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FACULTY OF

MESSAGE FROM DEAN



Prof (Dr.) Jagannath Korody
Dean, Faculty of Engineering
Manipal University Jaipur

I am glad to learn that the Department of Chemical Engineering is publishing the second edition of their newsletter “Chemfluence”, celebrating the recent achievement Nobel Laureate Prof. Frances Arnold an eminent Chemical Engineer. The newsletter is a good media to highlight the University’s and Department’s academic and non-academic activities.

The newsletter provides its readers with informative articles written by the faculty and students in broad spectrum of subjects. It also provides a platform for the department’s alumni to contribute and connect with the activities of their alma mater.

It gives me immense pleasure to convey warm regards to the editorial team and the mentors of the Department of Chemical Engineering for their continued initiative and efforts in giving shape to this edition of Chemfluence.

I wish the entire team of Chemical Engineering all the success in their future endeavor

MESSAGE FROM DIRECTOR



Prof (Dr.) Rakesh C. Gaur
Director, School of Civil and
Chemical Engineering
Manipal University Jaipur

It gives me immense pleasure in communicating with the young engineers through this newsletter. Chemical engineering department, enriched by highly qualified and dedicated faculty members is doing its best in nurturing the future chemical engineers.

I feel very happy to see the global appearance of the department by different international MOUs and exchange programmes. It is really encouraging that the projects carried out by the department are giving in-depth knowledge and fulfilling responsibilities towards society.

I wish that the department flourish more and more and get high success rate in future development.

ENGINEERING

MESSAGE FROM HEAD

Welcome to the Department of Chemical Engineering at Manipal University Jaipur. It gives me an immense pleasure in providing this message for our department newsletter. Our first batch of students from the department have successfully graduated in 2018 and among them few are already pursuing their higher studies in European, Australian and the American Universities, while others are placed in core chemical companies in India.

We have a strong undergraduate program and a Ph.D. program. We are currently having seven faculty members and their research interests are closely connected to the fields of chemical engineering which include material science, environmental engineering, process modelling and simulation including computational fluid dynamics. This blend of faculty profiles provides a stimulating environment for interdisciplinary research and education and our students do get benefit of it through interactions with such faculty having both national and international working experience in academics and industry.

Our research is in-line with the local and countries' needs particularly focusing on energy and environment and the department has already received funding from few industries and expecting to receive more such substantial funding from several funding agencies.

In conclusion, the department looks forward to future growth in terms of student populations and in terms of more research activities and look forward to any mutual collaborations.



Dr. Anand Gupta Chakinala
Associate Professor and Head
Department of Chemical Engineering
Manipal University Jaipur

MEET THE NEW MEMBERS (ADDITION TO OUR RESEARCH TEAM)



Dr Anita Gopalkrishna Sharma

RESEARCH ASSOCIATE

Dr Anita did her Bachelors in Chemical Engineering from Dr Babasaheb Ambedkar Technological University, Lonere, Masters and PhD in Chemical Engineering from Institute of Chemical Technology, Mumbai. She worked as a process engineer at Sponge iron manufacturing company, Vikramispat, Alibaug. Currently she is a Research Associate at the Department of Chemical Engineering, Manipal University Jaipur. Her research expertise includes waste valorization, chemical reaction engineering, catalysis, nano-material synthesis and characterization, chemical vapour deposition, pyrolysis and mathematical modelling.



Mr. Dheeraj Mighlani

PhD. SCHOLAR

Mr. Dheeraj did his B.Tech in Aerospace Engineering and M.Tech in Computational Fluid Dynamics (CFD) from The University of Petroleum and Energy Studies, Dehradun. He is ANSYS certified professional and fluid technical trainer. He worked as an Application Engineer in ARK Info Solution Pvt. Ltd, Noida and as Assistant Professor in Chandigarh University, Mohali. Currently, he is pursuing Ph.D. in the area of Discrete Element Modelling



Mr. Mukesh Bhatt

PhD SCHOLAR

Mr. Mukesh has completed his M.Tech in Chemical Engineering from IIT Roorkee. He has worked in CSIR- IIP Dehradun on sulfur-iodine thermochemical water splitting cycle for hydrogen production and conversion of poultry waste chicken feather to reaction catalysts and lubricant. He joined MUJ as a full time PhD scholar in 2017 and is working on Municipal Solid Waste pyrolysis to value added chemicals and fuel in the waste to resources

MEET THE NEW MEMBERS (ADDITION TO OUR RESEARCH TEAM)

Mr. Ojasvi Talwar

RESEARCH ASSISTANT

Mr. Ojasvi joined Manipal University Jaipur in 2018 as a Research Assistant. He is presently working on a project titled 'Thermochemical Conversion of Coconut Shell' in the waste to resource lab. He is an alumnus of the department, graduated in 2018. He further plans on going abroad for his higher studies.



Mr. Prasad Shivaji Patil

RESEARCH ASSISTANT

Mr. Prasad completed his M.Tech in rural technology from Shivaji University, Kolhapur and his B.E. in Mechanical from Annasaheb Dange College of Engineering and Technology, Shivaji University, Kolhapur. He has worked as a research fellow for Design Innovation Center under Pune University at Vigyan Ashram, Pabal. He joined MUJ in 2018 as a Research Assistant and is working in Waste to Resource Research lab on Pyrolysis Process for Municipal Solid Waste.



Mr. Shubham Dixit

RESEARCH ASSISTANT

Mr. Shubham has completed his bachelor's in chemical engineering for Sinhgad College of Engineering, Pune. After graduation he joined Manipal University Jaipur as a Research Assistant. He is currently working on a project titled "Waste to Resources" under the supervision of Dr. Abhishek Sharma.



THE MAGIC OF CHEMICAL ENGINEERING

Our generation has always been mesmerized by the magical world of Harry Potter and it is the first thing that comes to your mind when we talk about magic. So the spells and potions that we see in the Harry Potter franchise are they all true? Or are they not? Well, many of these spellbinding incantations and potions have become reality over the years. This is because of the relentless efforts of the innovative engineers and scientists that have used modern day science to add a bit of magic to our lives. So, as a chemical engineering student and a Harry Potter admirer, I thought of exploring the chemical engineering aspects behind some of our favorite spells and potions. Let's have a look:

Pepperup Potion – It is a potion used to cure common cold. It has the side-effect of causing steam to come out of the drinker's ears for several hours after it is imbibed. Today, the advanced biotechnological developments have helped cure common cold and many other deadly diseases. Chemical engineers with their knowledge of biochemical engineering have contributed immensely in the area of tissue engineering and drug delivery. Chemical engineers in their traditional role, helped manufacture laboratory scale medicines at commercial scales economically.

Impervius - It is a spell that is used to waterproof items. It seems to work by actually repelling water, rather than preventing penetration. Similar examples exist in our day to day life when we use water proof jackets or shoes. Well, this is done by developing fabric from polytetrafluoroethane (PTFE) (commonly known as Teflon), which can be spun into fiber and then into fabric. The product was accidentally invented by two dynamic chemical engineers W.L. Gore and his son RW. Gore naming the product as Gore-Tex [1].

Essence of dittany – You all may remember this healing potion that heals wounds and helps regrow skin at an instantaneous rate when applied. While it is difficult to produce a potion that can make fresh skin grow over a wound instantly, chemical engineers [2] have created 'smart bandages' that can perform the same function, just over a longer period of time. These bandages have electrically conductive fibers coated in a gel that can contain infection-fighting antibiotics, tissue-regenerating growth factors, painkillers or other medications. It can heal wounds three times faster than a normal bandage.

The Invisibility Cloak - Admit it!!! All of you would love to own an invisibility cloak like Harry Potter. Want to travel around the world? Just walk into the plane and enjoy the ride for free. In nature there are Cephalopods that can camouflage in the environment that they are in. Chemical engineers [3] have understood the mechanism of these aquatic species and have developed materials that can selectively reflect light. This takes one more step closer in making the invisibility cloak a reality.

Lumos – It is a handy piece of magic that can turn a wand into a torch to light up dark places. You know who lights up our dark world? Chemical engineers! Yes, they fill up our lives with light by creating the energy to keep our bulbs on. From fuel cells, to fossil fuels to nuclear energy, chemical engineers work across all parts of energy landscape to ensure that our electricity needs are met. They also help process materials that help make CFL and LED lightings.

Skele-Gro – Remember this potion?? It was used to regrow the bones in Harry’s arm after the Quidditch match. It can mend broken bones and even regrow entire bones that have vanished or been otherwise lost. The ‘wizards’ of chemical engineering [4] have devised a new implantable tissue scaffold. This scaffold on application to bone injuries or defects, stimulates the body to produce new bone that looks and behaves just like the original tissue.

To summarize chemical engineers, play a huge role in truing magic to reality. Thus,

“What science fails to explain is termed as “Miracle”. Science that people fail to understand is termed “Magic”.

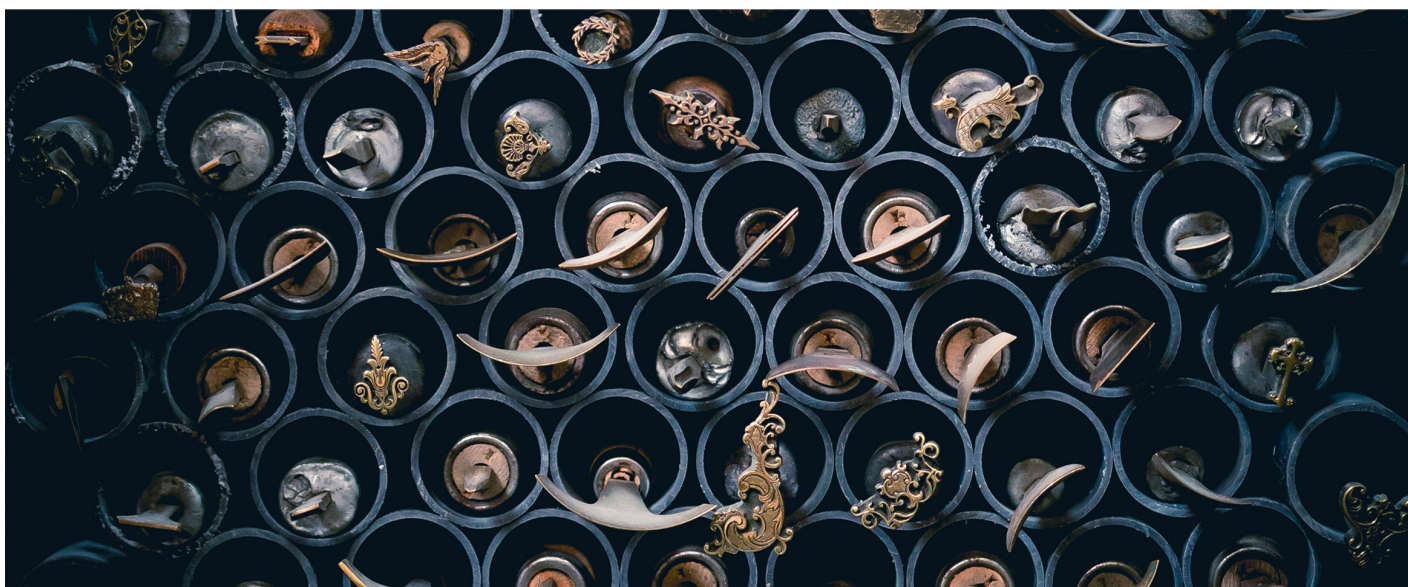


Photo by Cobro on Unsplash

References

- [1] US Patent, 1978, US4194041A
- [2] Biomater. 2014, 35, 2507.
- [3] Chem. Mater., 2016, 28, 6804–6816
- [4] Proc. Nat. Acad. Sci., 2014, 111, 12847 .

-Tanima Sharma (III Year)

CONFERENCE PRESENTATIONS / POSTERS:

FACULTY:

1. G.A. Bhaduri, S. Mohile **“Plasmonics: Revolutionizing photocatalysis”**, National Conference in Advancement in Material Science and Physics (NCAMP 2018), Manipal University Jaipur, Jaipur, 19th-20th November, 2018. (Oral Presentation)
2. Anees Ahmed Yunus Khan **“Soft, Elastic Macroporous Monolith by Templating High Internal Phase Emulsions with Aminoclay: Preparation, Pore Structure and Use for Enzyme Immobilization”**, 3rd International Conference on Soft Materials, MNIT Jaipur, 09-14 December 2018.(Oral presentation)
3. Harsh Pandey **“New Methods of Trapping and Separating Polymers and Particles at the Microscale, based on Conformation-dependent Electrophoretic Mobility”**, ICSM 2018 Conference, MNIT Jaipur, 12th December 2018. (Oral Presentation)
4. G.A. Bhaduri, **“Mineralization of CO₂- Challenges and Opportunities”**, Carbon Capture and Utilization Conference, CSIR-National Chemical Laboratory, Pune, 14th-15th December 2018. (Lecture Talk)
5. Ruturaj Sawant, J B Joshi, Abhishek Sharma **“Analysis and Upgradation of Waste Tyre Pyrolysis Products”**, 71st Annual Session of Indian Institute of Chemical Engineers CHEMCON-2018, National Institute of Technology Jalandhar, 27-30 December 2018. (Oral Presentation).
6. Md Oayes Midda **“Design aspects and modeling of two-stage fluidized bed membrane bioreactor and recent trends in wastewater treatment”**, 71st Annual Session of Indian Institute of Chemical Engineers CHEMCON-2018, National Institute of Technology Jalandhar, 27-30 December 2018. (Oral Presentation)

STUDENTS:

1. Ankita Gupta, Shruti Katti, Sanjay Mahajani **“Gas evolution kinetics of *Samanea Saman* during Pyrolysis”**, 71st Annual Session of Indian Institute of Chemical Engineers CHEMCON-2018, National Institute of Technology Jalandhar, 27-30 December 2018. (Oral Presentation)
2. Akshay Shrivastava, Anand Gupta Chakinala **“Thermal Decomposition kinetics of cellulose derived from sugarcane bagasse”**, 71st Annual Session of Indian Institute of Chemical Engineers CHEMCON-2018, National Institute of Technology Jalandhar, 27-30 December 2018. (Poster Presentation)

RESEARCH COLLABORATION / CONSULTANCY / GRANTS / MoU

Title	Name of the organization	Amount (INR)	Year
Industrial Grant on “MSW conversion to Fuel and Energy”	Bharuch Enviro Infrastructure Limited, India	46 lacs	2016
AISRF Project on “Integrated technologies for sustainable bio-based energy production”	Curtin University	7.5 lacs	2016
Enhanced Seed Grant (5 No’s, each ~3 lacs)	Manipal University Jaipur	15 lacs	2016-18
Consultancy Project	Shantol Green India Pvt. Ltd	5 lacs	2018
Consultancy Project	Shantol Green India Pvt. Ltd	37.4 lacs	2018
MOUs for research and academic collaboration	CSIR-Indian Institute of Petroleum	-	2016-18
MOUs for collaborative research	BEIL, SRICT, MVP,	-	2016-18

RESEARCH PUBLICATIONS:

1. A. Sharma, Y. Shinde, V. Pareek, D. Zhang, “Process modelling of biomass conversion to biofuels with combined heat and power”, Bioresource Technol., 2015, 198, 309-315.
2. H. Uslu, S. Majumder, “Adsorption Studies of Lactic Acid by Polymeric Adsorbent Amberlite XAD-7: Equilibrium and Kinetics”, J. Chem. Eng. Data, 2017, 62, 1501-1506.
3. A.Y. Khan, G. Kumaraswamy, “Soft, Elastic Macroporous Monolith by Templating High Internal Phase Emulsions with Aminoclay: Preparation, Pore Structure and Use for Enzyme Immobilization”, ACS Appl. Nano Mater., 2018, 17, 3407-3416
4. G.A. Bhaduri, R. Sharma, “Bloom’s Taxonomy and its relevance as a framework for Teaching and Learning in Higher Education”, Uni. News., 2018, 56, 14-16.

INTERN'S ASSURANCES

Last summer, I have had the incredible opportunity to be an intern at a prestigious chemical industry in Maharashtra, i.e. Rashtriya Chemicals & Fertilizers Ltd (RCF). I was allotted to the Ammonia V plant and was given the task to understand the entire process and working of the plant.

I was in awe to see a megastructure. Various unit operations including pumps and equipment were so big that they were out of my imaginative powers, as I had only seen them as images in textbooks or over the internet.

Ever since I had decided to pursue engineering, I was always interested in a desk job. I imagined myself brainstorming and collectively working with other engineering colleagues from different departments on multidisciplinary projects in a multinational company.

Before this summer internship, I had major doubts about the academic path I had chosen. If I can assure myself the job satisfaction for the rest of life? Everybody has doubts about their choice of career along the way; whether you are an average ambitious student or a class topper.

This internship spearheaded my belief on what I would want to be doing for the rest of my life. I was at RCF for 6 weeks. For the last 4 weeks I conducted the project titled “*An Alternative to Water Cooling Tower*”. It was during this project that I understood the true domain a chemical engineer holds in aspect of career opportunities.

The internship answered a major question I had in my mind, since the start of my bachelor's program which was “What exactly is a core branch? and why is chemical engineering called one?” During this internship I fully understood that a chemical engineer could work in any sector- be it paints, forensics, fuel and energy, construction, material testing, automobile, plastics, and many more.

I would not like to go into the technical aspects of my internship as every student out there is expecting a vast variety of outcomes from their respective summer internships. Instead, I would like to put forward and give a vague idea of how important this internship could be. It is immensely important for a student to choose their summer internships with upmost priority and considerations.

In conclusion, a student should and must have a dream company or sector they think is interesting and would give them the job satisfaction they deserve. An internship is the just a chance to try various preferences and choose because ***Pehle Istemal Kare Phir Vishwas Kare.***

-Sriraj S Mestry (IV Year)

THE CONFESSION OF AN ECCENTRIC TEENAGER

I was still in high school when I found myself fascinated by all the machinery on an unintentional visit to a chemical factory. The huge cauldron like structures, the boilers, and the massive network of pipelines and columns that touched the skies, everything working in tandem with each other. Through the eyes of an impressionable teenager, it was something that would have a lasting impact. “But sometimes, illumination comes to our rescue at the very moment when all seems lost; we have knocked at every door and they open on nothing until, at last, we stumble unconsciously against the only one through which we can enter the kingdom we have sought in vain a hundred years – and it opens”

-Marcel Proust, *In search of lost time*

Thus, I decide to choose engineering and three years later, I enrolled myself for an undergraduate program in chemical engineering at Manipal University Jaipur.

Already disheartened at being unable to qualify for an IIT or NIT. I expected to see wonderful things in my professor's blackboard scribbles. Unfortunately, I couldn't. I wanted the numbers to be beautiful. I wanted them to make sense. I wanted to *see*. However, I simply do not possess the imagination. And when the equations fail to yield the interesting phantasms promised to me, my body fails to hold up my head. I try my best not to snore during the lectures. I don't get bored. I simply get exhausted after doing assignments and lab work from the previous evening until the early blue hours of this morning.

I have the best teachers who teach us to question, the guidance along with endearment that anybody would be fortunate to have. Their genuine belief in our capabilities convince us not to blame our inadequacies. We are invited to attend workshops, symposiums and lectures; interact with luminaries, pioneers in their respective sphere, modestly dressed individuals who propose brilliant plans to solve problems of non-biodegradability, fossil fuel consumption and carbon emissions. I want to think like them. I want to have the same sparkle in my eyes when I talk about my work. I see more than a few peers of mine enthralled and captivated. I hang around with them and as one of them, still haplessly convinced that, I too, can become an engineer. It is hard to tell whether I enjoy the togetherness of our struggle, with our mythical-looking equations and our approximations and assumptions or is it that I use their enthusiasm to blanket my apprehensions. I allow my mind to wander and notice things, what I do not notice are the things that I am asked to. I find myself lost and feel like a victim of my own choices. The semester feels long and hard but everything moves so fast here and I end up wandering, looking for something novel and engaging.

I start blaming the choices that I had made, but how could I have known? maybe it is the education system, but an education system, even the most advanced one, has to be general in nature. We cannot expect that the system will be responsive to the uniqueness of individuals.

It took a few days, a few weeks for me to realize that an intelligent adaptation is perhaps the best way to make the most of any study course including mine.

-Atmadip Mukherjee (III Year)

SOCIETAL CONNECT

WE RISE BY LIFTING OTHERS

GRAMIKSHA - BE THE CHANGE

Doing something to help the society was always something I wanted to do and Gramiksha gave me that platform. Teaching students who aren't aware about the world, filling their curious eyes with knowledge and trying to connect them with the outside world has always been a beautiful experience that cannot be expressed by words. The experience of interacting with the kids was a bliss and every time I stepped outside, I knew that I have changed a little bit on the better part of the spectra and so did they. As the moto of our NGO says **"Be the Change"** is something I felt.

-Shashwat Dubey (II Year)

"Be the change you wish to see", is a very popular quote by Mahatma Gandhi that I follow currently and whole heartedly. Every small decision and action a person takes can make an impact. Gramiksha, was the choice for me. I worked as the Campaign and Outreach Head for Gramiksha, Jaipur. It was quite frankly one of the most magical experience I could be a part of. As a child I always wished to have my own fairy godmother. To play this role in someone's life is simply unexplainable. Gramiksha not only helped impart education to the underprivileged but also in gave them a general rounding so that these children can be the future of tomorrow.

-Gopika Menon (IV Year)

I have always wanted to do something good in the world in my own little way. Being in Gramiksha, I got a stage to help children while pursuing my dream of teaching. I volunteered and then headed the project **"Udaan"**. Here, I managed three schools where our volunteers would go and teach the students different subjects. They would also inspire the students and introduce them to the world outside. My journey through these sessions taught me life lessons on, How I could affect someone's life? It was once when one of the girls of my class came running to me after the last class and said, **"Didi, mujhe aapke jaise banna hai bade hokar, aur aapke jaise baat karni hai."** This journey made me discover myself in so many ways. During this time, I have become less prejudiced and more open about people who taught me crucial things in their own small way. This led me to better solutions in classrooms as well as in social situations.

-Shruti Katti (IV Year)



SOCIETAL CONNECT

WE RISE BY LIFTING OTHERS

BE A SANTA- “DONATE FOR A CAUSE”



Be A Santa – Donate for a Cause is a campaign started by the youths of Siliguri (a small town in West Bengal) with the motive of bringing happiness and joy in the lives of the underprivileged on the joyous occasion of Christmas. It all started three years ago in December. The third edition of the campaign was held in December 2018. Around 50 students from different schools and colleges came together to make this campaign a success.

The campaign started with putting up of donation boxes at different places. The most interesting and fun part of the campaign was the carnival held in Vega Circle, Siliguri on 22nd Dec'18. For the carnival each and every member had made something be it paper-bags, book-marks, tissue holders, coasters, dream-catchers, cushions, brownies, cupcakes, popsicles or chocolates. We had also put up games like 7 up 7 down and had machines where the people could personalize their own candy floss. We ran out of stock at around 6:00 in the evening and happiness of being able to sell everything was literally visible on our faces. With all the funds collected we bought food items, blankets and warm clothes for those who were in need. On Christmas Eve we distributed blankets to people sleeping on the road. The smile on their face made me feel contented and I had an amazing start to their Christmas. On Christmas morning we went to the leprosy center and distributed chocolates, warm clothes and packaged food among the people. They were brimming with happiness and I had a Jolly and Merry Christmas!



-Akriti Agarwal (IV Year)

DEPARTMENT NEWS

BIO-FUEL DAY

10th August 2018 was the World Biofuel Day. On the occasion, representatives of Indian Oil Corporation Limited (IOCL) took us on informative journey about the Indian Petrochemical Industry, economics and conventional as well as non-conventional sources of energy. Thus, making festivity knowledgeable which gave perspective to the youngsters. Rajasthan as a whole is not just a culturally rich state, but it has been maturing in terms of technological advancements as well.

IOCL, popularly known as one of the “Navratnas” of the Indian Industrial belt brought to limelight both the grey areas as well as the advantageous sectors of the petrochemical Industry. India at today’s date, is one of the importers of crude which thereby makes petroleum and diesel a commodity whose prices have been hiking. The government of India has been investing in research to improve the Indian GDP and to materialize the concept of “Make in India”. Dr. Abhishek Sharma, Associate Professor, Chemical Engineering enlightened us upon some of the methods employed to liquefy char which includes both gasification as well as pyrolysis. We students are the future of a brighter tomorrow and education is the biggest gift that could be given to us. Hence, studying a course was a choice we opted for but applying what we know is indeed our duty. This workshop showed us direction and grey areas that are yet to be covered which indeed gave us a lot of food for thought.



INDUSTRIAL SKILLS WORKSHOP

Aiming to provide an understanding of industrial process simulations and providing hands-on experience on various simulation tools, a two-day workshop entitled “Industry Skills Workshop” was held on 17th- 18th September 2018. Industry experts from Honeywell Automation India Limited lead the workshop providing an overview of various simulation tools and techniques used in the industry. A soft skill development session was also organized which aimed at the development of various qualities like communication skills, critical thinking, presentation skills, teamwork and leadership abilities which are required at the corporate level.



PRESENTATION SKILLS WORKSHOP

A workshop on 'Presentation Skill Development' was conducted by Dr. Gaurav Bhaduri, Assistant Professor, Chemical Engineering on 4th October 2018. Students from various branches of engineering attended the workshop. The correct way of presenting in front of a group were discussed, including emphasis on the important topics and voice modulation. Some important tips to make an effective presentation were also discussed.



INDUSTRIAL VISIT

On 15th October 2018, The Department of Chemical engineering of MUJ organized an industrial visit to the refinery of IOCL at Mathura for the 4th year chemical engineering students. The students were provided an insight of the real working environment of a continuous process industry. A presentation was delivered by the IOCL representatives on the safety measures that need to be practiced in the refinery, followed by an overview of the industry and its refinery processes. A tour of the refinery was organized and DHDS (Diesel Hydrosulfurization) unit's control room was shown. The whole unit was operated from this control room via huge Honeywell control systems by a team of technically skilled operators. The students were explained in detail about the process, the equipment, and the parameters that need to be controlled and how they are controlled. It was an incredible learning experience and it helped a lot in bridging the gap of practical exposure and class room teaching.



ANNOUNCEMENT: ARRIVAL OF A DISTILLATION COLUMN

We announce with great exhilaration the arrival of a fully automated, pilot scale distillation column in our department. Carrying forward the department's agenda of providing practical, hands-on experience to the students, this pilot plant will help students have a better understanding of the unit operation. This sieve tray column will provide students with an opportunity to practically learn the operation of a distillation column and conduct experimental research to expand their knowledge.



OUR PAST AND THE FUTURE

(ALUMNI MESSAGES)



I am pursuing my masters from TU Eindhoven, Netherlands which was first recommended by a faculty in my bachelors. Our faculty helps us gain good experience and build a strong platform for our future with proactive and dynamic course structure.

Explore new things, places and don't be afraid to talk/ask to the person next to you- if it works out then he or she may be your future mentor/close friend/ colleague and if it doesn't work out- you tried it anyway!

-Harsh Gupta



Studying at MUJ was an amazing experience for 4 years. The Department of Chemical Engineering has provided me the

platform to explore my abilities, skills and helped me grow personally as well as professionally. I express my sincere gratitude towards my professors as it is because of their constant encouragement and support that I am able to tackle real life problems as well as deal with the corporate world with ease. I would also like to thank the placement cell for giving wings to my dreams.

- Devyani Gosavi



'Chemical Engineering is a big deal' from being a 12th grade pass-out to calling myself a Chemical Engineer. All because the Chemical Engineering Department at MUJ has prepared us well. My first impression of Chemical Engineering was - it's all chemistry. But with the start of 2nd year we realized that "Chemical Engineering" is far deeper and greater Mystery. Thinking out of the box, sharing our views, be professional, sincere and disciplined are few things that were inculcated by our

faculties. I am currently pursuing masters at The University of Melbourne with scholarship. All I can say is that I'm a proud Chemical Engineer and it's all because of the efforts of the Chemical Engineering faculty at MUJ.

-Souryani Mohile



I believe a person is defined not by his achievements but by the capability he has for facing. Chemical Engineering was nothing's short of a challenge for me. In the last four years, I developed a sense of responsibility towards myself, my work, my career and my self-confidence. For this, I have to thank the chemical engineering faculties for their efforts and the coursework designed by them.

Initially, they were challenging but with due course of time, they taught us the art of managing ourselves, our work and also taught us how to behave in a professional world.

- Ojasvi Talwar

CONVOCATION '19 (ALUMNI EVENTS)

The first batch of Chemical Engineering was graduated in 2018. Degree was awarded to students in the Fifth Annual Convocation on 1st - 2nd November 2018.

The convocation ceremony was followed by a small alumni-meet organized by the department. The pass out students of 2018-batch interacted and shared their experiences at the university and beyond with their juniors.



Ms. Souryani Mohile received a gold medal for academic excellence for graduating batch of 2018.



CHEMICAL ENGINEERS ALL OVER THE WORLD

(Dr. Frances Arnold)

“To expect a noble prize is rather silly” are the words quoted by the winner of Noble prize in chemistry in 2018, Prof. Frances Arnold. Since 1901, when the first Noble Prize in chemistry was awarded, she is the only American woman, a chemical engineer and fifth female to receive this award. She was awarded the Noble Prize for the “Directed Evolution of Enzymes”, which is breeding at molecular level. Her aim is to create new and better biological material in the form of enzymes. Enzymes are proteins that catalyze chemical reactions. This allows us (chemical engineers) to use greener biological manufacturing processes to make fuels, chemicals and materials that we use in our daily lives. The enzymes Prof Arnold developed, have been used to manufacture biofuels, medicines, laundry detergent, and many more. In many other processes, they have replaced toxic chemicals making these processes sustainable. She has two companies Gevo and Provivi which work on enzymes to make better biofuels and to make nontoxic alternatives to pesticides that draw on the method respectively. She is a motivation to the women today that education and hard work can take you to unfathomable heights.

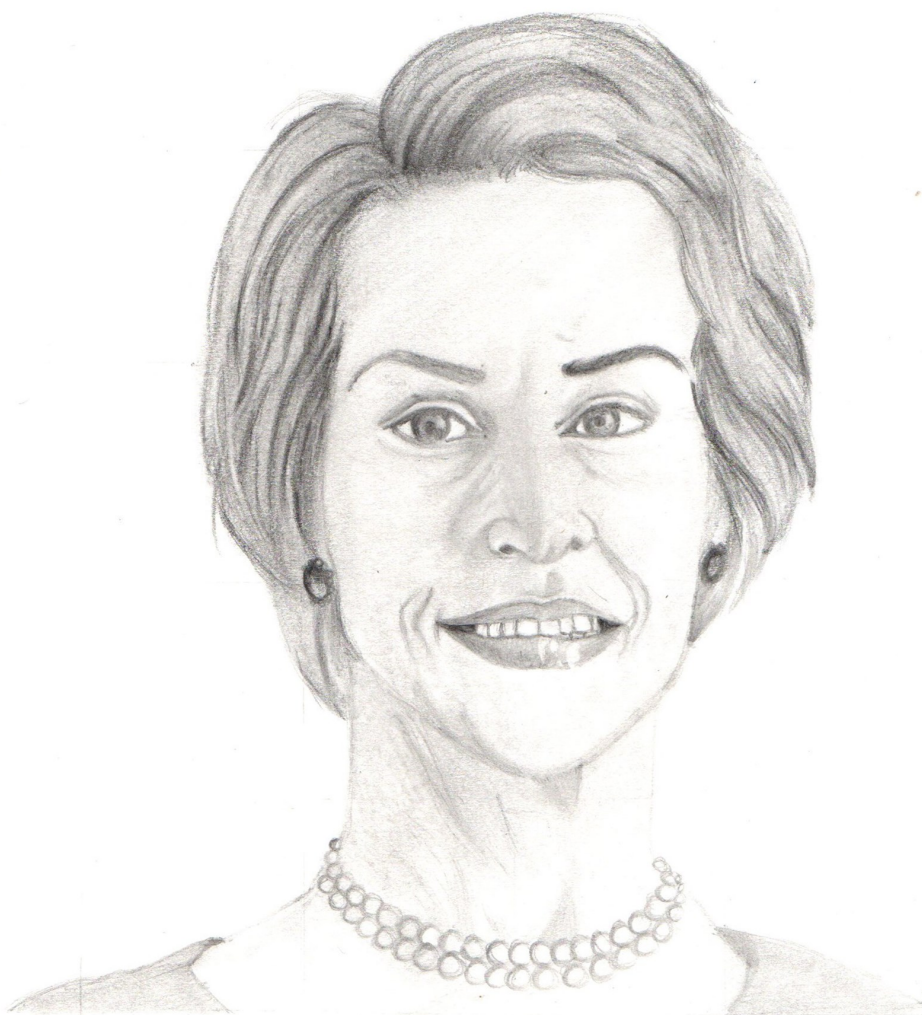
-Shruti Katti (IV Year)



Dear chemical engineering students of Manipal University Jaipur, I send you warm greetings from southern California. I have fond memories of your beautiful city, when I visited in December 2017 to spend time at Vatsalya, where my son worked several years ago. I hope you have satisfying and productive careers in chemical engineering, as I have enjoyed.

All my best,

Dr. Frances Arnold



Portrait Credit: Khushmeet Kaur (III Year)

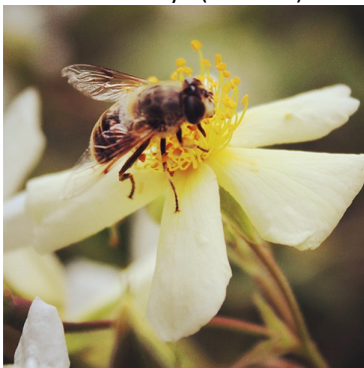
SHOWING OFF OUR TALENTS (THE TALENT CORNER)

MAN LIVES FOR ETERNITY

Authors leave back books,
And poems poets leave.
Scientist mark their name in science,
for History historians keep.
Every soul has his way,
to leave back what he has.
But maybe death is the end,
Ideas live again and again.
May one live his life in bad,
But then also he shall be not sad,
For eternity will recall him back,
Cause deeds, by mouth shall pass.
And at the end all will be called,
Even if are dead,
Man's body shall ruin off,
But ideas live for eternity.

- Dr. Gaurav A. Bhaduri.

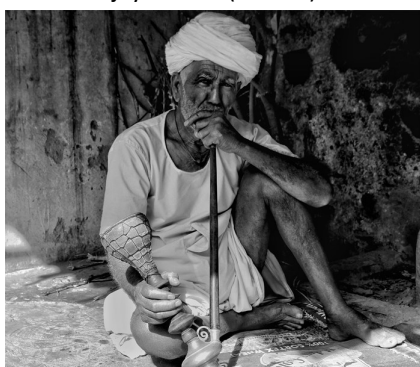
Roneit Punamiya (IV Year)



Nikunj Khanna (II Year)



Anish Sanjay Thorat (II Year)



Vartika Satyawali (II Year)

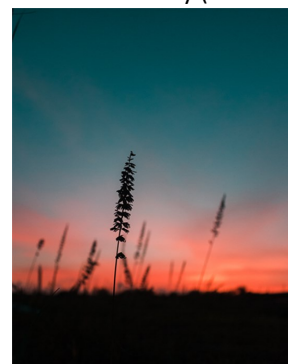


THE VOYAGE

The sand Dunes pricking my eyes,
Like a thousand edged knife.
I am a traveller,
A Voyager in search of light,
In the midst of sorrow and melancholy.
My spirits unbroken, Undaunted.
I keep walking forward,
My brave never wearing apart.
I see a mesmerizing lagoon
In the middle of the dessert,
Twas a mirage, an unanswerable puzzle.
But I seek the root of this lie,
Dazzling rubies and shining diamonds,
I don't hesitate
To look around the haze,
I see two scales,
Obscure heart crying to be saved,
The other a shimmering one
Promised my every desire to come true.
That's is when, I realised.
If there weren't any darkness
How will we know the light.
And so I picked up the dying heart.
And it turned red
Colour so victorious.
My voyage finally came to its end.

- Sukhmani Singh (II Year)

Shashwat Dubey (II Year)



OUR FIRST BATCH
(2014-2018)



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