



VOLUME-IV



ANITS

Rasagyan

Wings of CHEM Knowledge



editors note

As the proverb goes "A journey of thousand miles begins with a single step". The publication of this maiden magazine is a major milestone in the progress of our department. This magazine will open a window of opportunity to all the people who want their voices to be heard. We are striving forward with the hope of creating a future full of optimism and enthusiasm.

To the readers:-

Faculty, parents and my co students a little patience will help us see through and come out even stronger in the future. Most importantly it ignites pleasure, satisfaction and a great sense of pride in me for being the Editor of this magazine. We would like to end this note by giving heartfelt thanks to our seniors who gave us a great opportunity for presenting ourselves.

Hope you all enjoy your reading...!!!

*V.V.Sai Karthik (IV/IV)
- Editor-in-Chief*

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Profile of Department of Chemical Engineering, ANITS

The Department of Chemical Engineering was started in the year 2012 with a UG programme in Chemical Engineering (60 intake) and a PG programme in Biotechnology (8 intake). The Department boasts of a very efficient team of faculty with 5 Ph.D.s and 7 M.E. / M. Tech.s from premier institutions like IISc, IITs, BITS-Pilani and Andhra University. The faculty participates actively in state of the art research and continuously strives to update knowledge and skills. The department has an ongoing UGC major research project worth of Rs. 12,39,100/- and a completed consultancy project worth of Rs. 30,000/-. The knowledge and skills gained is imparted to the students in class rooms by conducting workshops, seminars and conferences to craft the next generation of engineers. So far the department has conducted three workshops in that direction. The department has well equipped Chemical Engineering laboratories and various equipments for inter disciplinary research in the fields of Biotechnology and Nanotechnology. The major equipment include uv-vis spectrometry, gas chromatography, laminar air flow chamber, autoclave and Fermenter.

Modern teaching methodologies are constantly implemented to foster an improved class room environment. Team work among students is encouraged to inculcate positive work habits and passion to work wisely, creatively and effectively. Students to their credit won many prizes in curricular, co-curricular and extra-curricular activities conducted at various IITs, NITs and reputed institutes across the country. The students of Chemical Engineering formed a student body called, RACE (Rays of ANITS Chemical Engineers) to inculcate new technologies in the form of workshops and to exhibit their technical and nontechnical talents in the form of student conferences (CHEMFLARE). RACE body organized two Techfest's from its inception. RACE body to its credit also organized Charity by distributing free medicines at Araku in collaboration with Lions Club, Visakhapatnam. The students of Chemical Engineering are placed across various IT industries like Infosys, IBM, Mu Sigma, and Ux Reactor and in core industries like Ocean India, Divis laboratories, Teejay India Pvt. Ltd. and Deccan Fine Chemicals Pvt. Ltd. to name a few. Students are also encouraged to study further inline and across the Chemical Engineering.



Head of the Department, Chemical engineering.

Faculty Profiles

Prof. S. Subba Rao: Major research interests include Bio-chemical engineering, Mineral processing engineering and chemical reaction engineering. Worked on industrial fermentation of producing Citric acid, Glutamic acid, Immobilization of enzymes and whole cells, Reactive Distillation and Grinding studies. Currently working on a UGC Major Research Project entitled "Optimization of production parameters, extraction and characterization of a medicinally important drug Viola-cein by Solid State Fermentation".

Prof. G. H. Rao: Major research interests are Chemical Reaction Engineering, Optimization and Design of Bio-Chemical processes. Worked on fermentation of different by-products, optimization of bio-process parameters using Response Surface Methodology (RSM) and Artificial Neural Networks (ANN).

Prof. V. Sridevi: Major research interests are Bio-Technology, Optimization of Bio-Process. Currently working on Isolation of Novel Micro Organisms from various sources and their utilization to produce value added products.

Dr. Ch. Anil, Associate Professor: Major research interests are in process modeling, simulation, optimization and control. Currently working on microbial fuel cells and desalination techniques to promote socio-environment technologies. Published various research articles related to Proportional Integral and Derivative controller settings for Jacketed Continuous Stirred Tank Reactor, Level controlling system in distillation column, Boiler steam drum, Paper drum dryer cans, Surge tanks and Bioreactors.

Dr. M. Shiva Naresh, Associate Professor: Major research interests are in Theoretical Biology, Experimental Design of Bioprocess and Synthesis of Nano Materials. Current working on photo-catalytic degradation of pathogens and heavy metals present in contaminated drinking water using nano TiO₂ catalyst. Published papers on protein- protein interaction of HIV and immune T-cells and optimization of process parameters of fermentation process. Completed consultancy project on anticorrosive paints to M/s Anantha Coatings, Hyderabad.

Dr. P. Mary Anupama, Sr Assistant Professor: Major research interests include Optimization of fermentation processes, production of enzymes, primary and secondary metabolites. Currently working on a UGC Major Research Project entitled "Optimization of production parameters, extraction and characterization of a medicinally important drug violacein by Solid state fermentation". Other research areas of interest includes studies in downstream processing and Biofuels. Editor to a number of journals of repute.

Dr. K. China Malakondaiah, Assistant Professor: Major research interests are electro-chemical techniques for ceramic and composite membranes fabrication for water purification. Presently working on bacteria removal from synthetic solutions using low cost laboratory fabricated ceramic membranes.

Dr. Anjali Dasari, Assistant Professor: Major research interests are study of Hydrodynamics of viscous oil water flow through various pipe networks, CFD simulations, ANN and water treatment techniques. Currently working on bio-sorption to treat pharmaceutical waste water.

Mr. M. Koteswara Rao, Assistant Professor: Major research interests are in process modeling, simulation, optimization and control. Currently working on Proportional Integral and Derivative controller for MIMO systems.

Mr. B. Pradeep Santosh Kumar, Assistant Professor: Major research areas of interests includes Chemical Looping Combustion, Under Coal Gasification (UCG) and Synthesis of effective Adsorbents. Currently working on photo-catalytic degradation of heavy metals and pathogens present in contaminated drinking water using Provoxisites.

Ms. P. Mallika Rani, Assistant Professor: Major research interests are in battery technology, fuel cell technology. Currently she is working on insitu carbon coating techniques on LFP cathode

Ms. S. Harika, Assistant Professor: Major research interests are in battery technology, water treatment techniques. Currently working on Phase change materials for LIPO cells.

Ms. B. Suchitra, Assistant Professor: Major research interests include Plant Designing and Optimization, Enhanced Oil Recovery Techniques and Revamping of Mini-Refineries. Currently working on Optimization of Distillation Columns by altering Crude Feed Composition through Aspen PLUS and HYSYS.

Ms. C. Maheswari, Assistant Professor: Major research interests are in the treatment of waste water with industrial waste and modeling, optimizing the treatment efficiency. Currently working on the removal chromium using red mud, a bauxite industry waste.



Faculty Members

RACE (RAYS OF ANITS CHEMICAL ENGINEERS)

Rays of ANITS Chemical Engineers or in short RACE, started in the year 2015 is the student association of the Department of Chemical Engineering to facilitate the curricular, co-curricular, social and extra-curricular skills of the students helping them in facing today's world. The main objective of RACE is to carefully plan and implement various activities which enhance the competitive skills of the students thereby providing them with a perfect platform to display their skills.

RACE body under the guidance of motivated and energetic faculty members of the Chemical Engineering Department has so far conducted two National Techfests under the banner of 'CHEMFLARE'. In this short span of time the RACE body has shown its mettle by establishing itself as one of the most valuable assets of ANITS family.

Curricular Activities: RACE has activities to foster student's national workshops and with eminent personalities

Extra Curricular Activities: of activities encouraging overcome their various becoming more confident development.

Teacher's day:

Guru Brahma Guru Vishnu Guru Devo Maheswara said a wise man. We the students of chemical engineering strongly believe that teachers are the divine creatures on the earth.

On the eve of teachers day RACE body conducted various competitions to engage students and promote healthy student-teacher relationships.

Students talked about their favourite teachers and what they have learnt from them.

Ganesh Chaturthi

We as students have to do our part for the society. On the eve of Ganesh Chaturthi RACE body in collaboration with an NGO put up a stall to sell Ganesh idols the proceedings of which were donated to a charity. The students of all branches participated and helped in making it a huge success.



organized various co-curricular knowledge by conducting arranging interactive sessions from various fields.

RACE organizes various types students to take part and fears and help them in nurturing their overall



Race Body Members

BELIVE IN YOURSELF

Once upon a time in a village there weretwo scientists Rahim and Akhil. They were working as marine biologists. As part of their research they caught a shark and put it in a tank in their lab. They started sending small fishes into it and by watching small fishes the shark becomes aggressive and started eating them. The scientists make a partition in the vessel by keeping a fibre glass in it. And again they started sending fishes into it from the other side of the vessel. The shark tried to break the glass but failed. So whenever the scientists sent fishes, the shark used to getaggressive and tried to break the glass. This was repeated daily for two weeks. From time to time the shark reducedits attempts to break the glass. Finally scientists decided to take out the fibre glass from the middle and they sent the fishes into it but then the shark stillbelieved that there wasa glass and it didn't even try to break the glass. Because the shark was trained to believe a barrier existed between itself and the fishes,the fishes swam wherever they wished, free from danger.

Same thing happens in our lives as well,after experiencing setbacks and failures we emotionally give up and stop trying. Just like the shark in the story, we believe that because we were unsuccessful in the past, we will again be unsuccessful in the future alsoin other words, we continue to see a barrier in our heads, even when no 'real' barrier exists between where we are and where we want to go.

Therefore no matter the hurdles we face we should never give up.

- J. Sasidhar(III/IV, B. Tech.)



IN FAVOUR OF CHOCOLATE

“All you need is love, but a little chocolate now and then doesn't hurt”, said a chocoholic somewhere. Chocolate is something that some of our sweetest memories are made of. Nothing can beat the pure, unadulterated joy of biting into a piece of creamy, dark chocolate.

We all have our own chocolate memories: from sharing a bar with friends or cutting a gooey chocolate birthday cake. The special grin people break into when they get a chocolate, symbolizes the sheer deliciousness of it, a high like no other. It's no wonder that in the past the Aztecs regarded chocolate as divine and precious enough to hoard as treasure and even use it as currency!

Chocolate wasn't discovered recently though. The Mayans are credited with being the first to recognize the value of the cacao tree's seed, way back in 250-900 A.D. The Aztecs followed soon after, making a thick, spiced chocolate concoction called 'Xocolate' from which the Spaniards coined the name 'Chocolat' or 'Chocolate' as we know it today. So, the Spanish were responsible for unleashing the Aztecs Chocolate secrets to the world and starting a worldwide chocolate revolution from Europe. The new and improved sweetened version of chocolate became the greatest discovery to hit the continent, since the discovery of fire.

The extracts from a cacao bean requires several processes like conching and tempering to produce the final finished chocolate. Interestingly, the first chocolate was produced by Joseph Fry's in 1728, in Bristol, which was later bought by Cadbury, which then went on to become one of the most recognized chocolate-makers in the world. Industrialization only sweetened their cause, as chocolate was now being mass produced, making it one of the biggest industries in the world and making chocolate every household's guilty pleasure.

Dark, light, milky, creamy, fruity, crunchy – the array of chocolate flavors available today can even turn non-chocoholics into a chocolate lover. There is something for everyone and for every occasion. In India, a country where no festival is complete without sweets, chocolates are slowly becoming the universal choice of the people, young and old alike.

The health benefits of chocolates have just added to their appeal. Research has shown that eating a piece of dark chocolate everyday can reduce the risk of cardiovascular disease by 30 to 35%. Further, dark chocolate with a high cocoa content contains minerals like Magnesium, Iron, Zinc, Potassium, etc. along with flavonoids and stimulates like Theobromine which are known mood enhancers. Flavonoids present in chocolate also improve the flow of blood to the brain, thereby improving cognitive function. However, for the critics, the sugary, low cocoa content chocolates do more harm to people's health than good.

But at the end of the day, very few can resist the tantalizing lure of a slab of exquisitely scrumptious chocolate!

I.Aniketh(I/IV, B.Tech.)

TEACHERS

-Ms.B.Suchitra
Assistant professor

There are many kinds of teachers,
All around the globe,
Some of them are preachers,
Some guide, while some probe.

Some teachers pose a mystery,
Some of them are warm,
Some take us back to history,
Some make us toil in a farm.

Some make us love travelling,
Some teachers shut us in lab,
Some make lessons interesting,
Some make them plain drab.

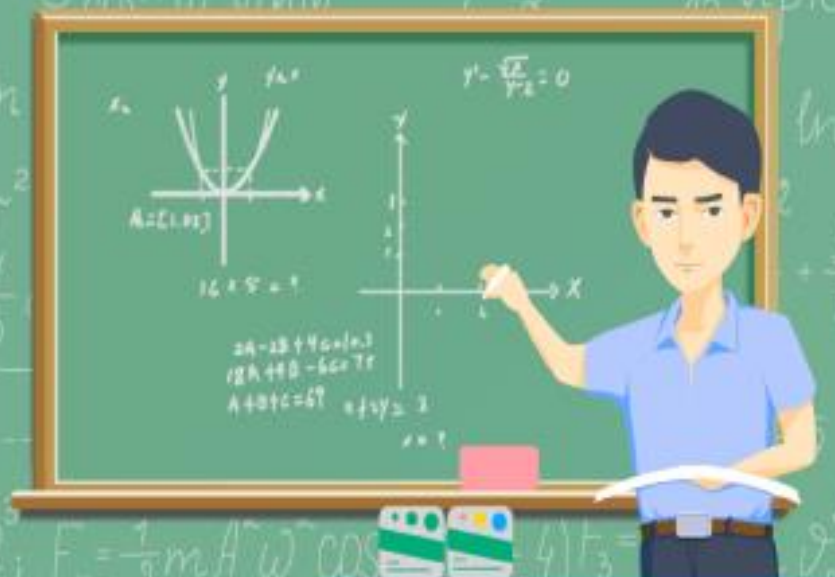
Some teachers just scold,
Some speak in just their tongue,
Some of them are too old,
Some of them too young.

Some teachers make a preference,
Some teachers have a bias,
Some give us good job reference,
Some help us climb a dais.

Some give too much homework,
Some love to ask questions,
Some are clumsy, a bit quirk,
Some need fashion suggestions.

Some make problems simple,
Some of them like to confuse,
Some have smiles and dimple,
Some complain and refuse.

But no matter how they are,
Every teacher has always taught,
That in life you may go so far,
But still you have to learn a lot.



Beno Zephine

BenoZephine was born on 17th April 1990 in Chennai, India to Luke Anthon Charles, an employee of Indian Railways and Mary Padmaja, a home maker. She did her schooling in little flower convent higher secondary school for the blind in Chennai, and further did her Post Graduation in Loyala College, Chennai. She became the first 100% visually challenged Indian Foreign Service officer(IFS). She fought against all odds to become India's First IFS officer. It was the abhorrence she exhibited in her teenage years, when it came to people wasting even a drop of water and the subsequent response from her relatives and friends, which inspired N.L benoZephine, now 25 years old, to attempt the civilservice examinations, while she went around urging them to conserve natural resources, they would tease her by calling nattamai(village head) and collector. When she was pursuing class 11 she taught many people who let the taps, run understand how precious the water is.

In 2014, she secured an impressive all -India 343 rank in the prestigious IAS examinations. On Friday evening, after a year's time, Mrs. Zephine was informed about her appointment to the Indian Foreign Service. She is now pursuing Ph.D. at Bharatiyan University and is set to join the ministry within the next 60 days for training. Mohan Kumar,



India's ambassador to France and a native Tamil speaker like Zephine, has found a blind teacher to instruct Zephine in the French language. Myrem Dugan, the blind teacher who can write French in Braille, and her blind student have spent every morning, five days a week, in the last six months imparting and receiving one-on one French lessons. French language has become obsession for Zephine. In a spirited hour long conversation at the Indian embassy here, Zephine told the telegraph how she had gone to alliance franchise in Chennai when she was in lower Kindergarten asking to be taught French. Amused teacher at alliance franchise had sent her away, telling Zephine she was young to be taught French in a formal set up structured for adults. When she joined the IFS, Zephine saw second chance to fulfill her childhood dream of learning French. She cited that language as her first preference to the ministry of external affairs as a probationer. That helped earn her the opportunity to be posted to Paris as a language trainee. The French are amazed that India has taken the challenging and unconventional step of assigning a blind girl the rank of a diplomat and posting her abroad to represent the country. The French government's chief of protocol told the Indian ambassador that New Delhi had done what French diplomatic not attempted in its centuries-long existence.

Other French foreign ministry officials, people who wear their country's diplomatic achievements on their sleeve, sat with a tinge of envy that while Europe boasted of its record in facilitating normal lives for people who are variously challenged, India has stolen a march on them on Zephine's case. India normally sends all of its language trainees to one specific Institution in the Paris to learn French. When the word spread here about the arrival of India's first visually challenged diplomat, eight Parisian institutions offered to instruct her in the language. Success is how high you bounce when you hit bottom. Better is not something you wish, it's something you become.

-S.Krishnaveni(III/IV, B.Tech.)

TRUE FREEDOM

Even though we got our freedom 72 years ago, we aren't truly free. The issue of WOMEN HARASSMENT has been one the most sensitive issues but we haven't been able to find a proper solution.

Women are still afraid of going out alone, they still face problems at their workplace, they are afraid of using public transport and it has come to a point where it has become difficult for them to even study.

Is this the freedom we rooted for, the one we fought for, the one many brave people had to lay down their lives for. I feel we have let down our freedom fighters, our elders and our soldiers and many others whose gallant efforts went unnoticed. Because we still are unable to provide security for our family.

We blame our government we blame various other establishments, but we fail to recognize our own mistake our own insecurities our own mind set that are bigger reason for these atrocities. When we look at women we look at them either as someone beneath us who can be dominated and be commanded over or as someone who is above all that is as a holy creature. But alas we fail to look them as one of us, as an equal, as a fellow human being as someone who taught the world the true meaning of selfless love in the form of mother.

If we can treat a girl like how we treat our sister or mother then there would be no crimes against them. Demanding justice by taking candle walks is not enough. We need to educate others by spreading the actual meaning of love. Change doesn't come from outside it should come from within us.

According to recent survey majority of the crimes against women have been done by people known to them, neighbours, colleagues or other acquaintances. So first we should change ourselves on how we look at women and how we treat them before we set out on changing others. True freedom can be achieved only when every citizen of this country can roam without fear and dream without boundaries

SHE IS NOT A PIECE

SHE IS NOT A MAAL

-V.Bhavani(III/IV, B.Tech.)

She is a Girl

She is a Mother

She is a Daughter

She is a Sister

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Scope Of Chemical Engineers In Mining

It's surprising to know that chemical engineers are called universal engineers, it's a fact that many people are unaware of. The importance of chemical engineers in an industry is more often under-stated. Here, I am going to mention the opportunities of chemical engineers in mining. A chemical engineer is supposed to have a brighter career working in a mining company than many other chemical industries. They mainly work as a supervising officer in Research and Development department and waste water treatment plants in a mining industry. If they hold an MBA then they can also be the head of the industry.

As a chemical engineer working in a mining company, you will find yourself working in the following work places:

- In development and designing of new equipments and chemical processes that make production easier, in less time with low cost.
- In managing and optimization of the plant operations.
- In sample testing labs and avoiding damage by prescribing the suitable material for different operations.
- In environmental management - waste water treatment plants and pollution control board.
- Process control - which helps in making the manufacturing unit run smoothly, safely and efficiently.
- Explosives used for mining are manufactured under the supervision of a chemical engineer.

Working conditions:

In mining, chemical engineers will spend an amount of time in the field. They can typically find themselves working in remote areas where they will be exposed to extreme weather conditions. In mining they have an opportunity to work with other engineers such as mining engineers, environmental engineers.

Personal attributes:

1. One should love to work in a laboratory type environment because they generally deal with dangerous chemicals which need an elevated sense of respect for safety and regulations.
2. Should be able to embrace new techniques and technologies.
3. Should possess the ability to work under pressure and to reach the deadline in time.
4. Have a good work ethic and always strive for a goal.

Generally chemical engineering is not a preferred branch of engineering for many people. Even those who choose this stream prefer petroleum and pharmaceuticals industries, although they have huge opportunities in other industries. I would like to conclude "Don't follow the routine, think out of the box and do different".

-Dante Ronald (II/IV, B.Tech.)

HOSTEL LIFE

Hostel. It is the word which is used by parents to scare children. It is a nightmare for many children and therefore many of them think of it as a bad place. But all of these nightmares are for school hostels only but the college hostels are a fun filled place.

But hostel is not a match for our home. In our home we have our parents to do everything for us especially our mother who takes care of us at all times when we are in need of help. We leave our home and come to hostel to study. In hostel we must take care of ourselves. Although we are provided with basic amenities no one would look after us like our parents.

There are many bad things about being in a hostel. The most important is that we miss our parents. No matter how hygienic the food looks, every hostel food is horrible. Once in a blue moon when they accidentally cook tasty food they make it limited and won't give more of it. Washing our clothes is another burden as we have to do it ourselves and the so called "Dhobi" instead of washing them clean brings them back with more stains. And then there is also a problem with water where it is not available for us when we really need it in emergency situations. Wardens are nightmarish. They won't give us permissions to do anything even to go out on an important work. To go out we need to get a list of permissions. They keep meetings about unnecessary topics and leave out the crucial ones.

There are tonnes of best things about being in a hostel. The major one is friends. All of us have trust and live with unity. No one is left behind. Being a hostler is like wearing a brand or like belonging to a major community. We share our darkest secrets with our friends even the ones which we won't share with our parents. Birthday parties are a blast. We bring out our inner talents and overcome our greatest fears. We also learn and try a number of new things. Gossips travel faster than light in hostels. Overall there is a lot of fun and frustration in hostel lives.

There's no better place on earth to learn so many things with unlimited freedom. We find the true meaning of our life and when we leave our hostel we go out as a changed person.

-Lalitha Nagireddy(II/IV, B.Tech.)



JUSTIN BIEBER

Justin Drew Bieber who was born on 1st march 1994 is a Canadian singer and lyricist. Bieber's current manager, scooter Brian first discovered him from his YouTube video in 2007. Brawn was impressed with the videos and contacted Bieber's mother and arranged to meet Usher in Atlanta, Georgia. Bieber signed contracts for RBMG and then to an island's recording concert offered by record executive, L.A.Raid.

Bieber released his debut "My world" in Nov 2009 and was certified platinum in United States. He became the first artist to his debut record chart on to the billboard hot 100.

He started his full length studio album of "My World 2.0" in March 2010. It was preceded by single "Baby" which is also as of July 2014, the YouTube video with the most likes and most views. He followed up the release of his debut album with his first headlining tour consisting of "Never say never-The remixes" in November 2011.

He received numerous industry awards including both "Artist of the year" at the American music awards and the 2012 American music awards and was nominated for the best new music and best pop vocal album at 53rd Grammy awards. With a global fan base termed as "Biebers" and over 40 million followers in twitter, he was named by Forbes magazine in 2012 as the third most powerful celebrity in the world. However he fell down the number in 2013.

-B.Meenakshi(III/IV, B.Tech.)



Guest Lecture on "Operations and Opportunities in ONGC"

Guest lecture on "Operations and Opportunities in ONGC" by Mr. K. M. K. Chand. Dy. General Manager (Retd.) ONGC was arranged by the Department of chemical Engineering ANITS. Mr. K. M. K. Chand told that students were the future of the Nation and that there was no short cut to success. He introduced oil and gas industry to students by focusing on various areas of oil industry like Survey of land which can be done by geoscientists, building of wells by reservoir engineers etc. He also discussed about the upstream, transportation of fluids and downstream of petroleum industry.

Ms. K. Sarada W/O Mr. K. M. K. Chand advised students to manage their time to know things better. She motivated students to gain enough courage to face any challenges. She told that self-motivation is very important tool to attain success. Students should have skill, knowledge and ability to solve any problems. She also told that students should have sound knowledge on core subjects. She addressed students on how to face an interview. She advised students to add value to education. Prof. Subba Rao, Head, Department of Chemical Engineering, faculty and students participated in the program.



Guest Lecture cum Interactive Session:

A guest lecture cum interactive session was organized by Department of Chemical Engineering, ANITS on 14th February 2019 by Mr. S. V. Ramana Rao. He had 30years of industrial expertise in Oil & Gas arena (HPCL, Caltex, etc.,). The speaker shared information on Fire, Safety and Hazard Management. He gave a brief outlook on Fire fighting equipments, Environmental, Health and Safety precautions to be considered during hazards. He also explained the concepts of oil spillage which was a threat to marine life. Students had a lively participation in getting clear ideas and making the session useful and successful. Prof. S. Subba Rao, Head, Department of Chemical Engineering, all faculty and students participated in the Programme.



CHEMFLARE 2k18

A Technical Extravaganza

The Department of Chemical Engineering, ANITS has organized a two day National Level Student Conference Chemflare 2k18 during 30-31 January, 2018. Chief Guest of the event Mr. B. Balagangadharam, Chief General Manager (Technical), HPCL, addressed the gathering and highlighted the importance of chemical engineering subjects like fluid mechanics, mass transfer, heat transfer and fluidization engineering. He enhanced the knowledge on upstream and downstream processes. Guest of honour Mr. B. Ravikumar, Deputy Controller of Petroleum and Explosives, shared his knowledge on chemical engineering with students. He told that Chemflare is a big platform to explore the hidden skills within the students. Mr. Naveen Neerukonda, Treasurer, ANES mentioned that technical fests are very important in students life and they can share their knowledge with other students so they can enhance their skills.



Prof. T. V. HanumanthaRao, Principal, ANITS gave a glimpse on current trends of Chemical Engineering. Prof. S. SubbaRao informed the gathering about the responsibility of chemical engineers in solving the problems raised out of the chemicals industry. Ms. P.V.SaiSudha, president RACE, introduced the student forum RACE and enlighten on the events of Chemflare 2k18. Chemical Engineering Department took an initiative to launch departmental magazine "Rasagyan" which was released by Mr. B. Ravikumar. Subsequently various competition and spot events were conducted and prizes were given for the same. The Souvenir C.D's containing the details of the **technical** sessions was released on the occasion and a formal vote of thanks was given by MR. Vivek Inna, II/IV Chemical Engineering student.

Model Exhibitions:

The main dictum of this event is to make students enhance their basic chemical engineering knowledge by shaping their ideas in the form of sophisticated models. Prizes were distributed to the best models which sustain to the modern technologies.



Paper Presentation:

The main dictum of this event is to introduce the latest trends in research and technology and also to develop the presentation and communication skills of an individual. Students showed their mettle during the Chemflare2k18 around 28 papers was presented. The event was conducted for a period of 2days.



Poster Presentation:

The main dictum of this event is to enhance the students to showcase their creative skills. Poster presentation is a key component of communicating science and an important element in successful career.

Technical Quiz:

This helps students in overcoming stage fear and in developing the communication skills of the students. Technical quiz event was conducted to test the knowledge of the students.

Treasure hunt:

An extravaganza event has been introduced for the first time in the department. The main dictum here was to test the knowledge of the students in the lighter way. The participants were made to find the clues which were placed in different laboratories of the department, depicting the chemical knowledge. The best team consisting of sharper minds have won the contest.

Cultural Night:

The most awaited and vibrant night of the year, the extravaganza cultural night has begun with the students pumping up their energy levels all across the auditorium. The event has come to life by the performance of the students. This is one of the night, every student of the department will like to re-live.



Chèminèèrs to cònqùèròrs

Last academic year(2017-18) Chemical engineering department students have won the most "decorated" Inter-Departmental dance competition by giving a tough fight to the dancers of other respective departments. A team of dazzling dancers have ruled and won the hearts of all the dignified judges and clutched the "Trophy" from the civil branch by defeating them at the night of finals. The Students of our department were able to mesmerize the crowd as well as the dignified personalities by instilling a spirit of patriotism in the hearts by their patriotic dance. This achievement had indeed added a golden leaf in the chapter of our department.



LIGO



Apart from the various successful missions and innovations in space research, the detection of gravitational waves is an epic break through in this century until now. Over the struggle for more than 50 years trying to prove the existence of gravitational waves which was coined by Albert Einstein in his "Theory of Relativity" in 1916 is now true. On September 14, 2015 gravitational waves were first detected in Livingston, Louisiana making Einstein's theory true. And this was possible by LIGO. It's an acronym for Laser Interferometer Gravitational Wave Observatory. Sounds complex right. Let's make it simple.

It is a device which is specifically used to detect gravitational waves. The universe is filled with something called space time just like a stable pond filled with water. When the water is disturbed it creates ripples in the water. Likewise due to massive accelerating planets or two black holes orbiting each other and colliding and due to various cataclysmic events they create ripples in the space time known as gravitational waves. Unlike the calm water ripples these waves are extremely dangerous and destructive as they travel with the speed of light, but lucky for us the gravitational waves detected by us are more than about 1.3 billion light-years away from earth and they are smaller than the size of the nucleus of an atom. They are completely different from electromagnetic waves or any other waves. Let us stop here about the knowledge of gravitational waves and get back to this LIGO device before we break our brains by going deep into the concept of gravitational waves.

Well, LIGO is not a portable device like used in laboratories. It consists of two arms in "L" shaped stretched over 4 km square area with each arm length being 2 km and these act just like an antenna. One arm is like the ears where it detects and the other feels the waves. These arms consist of vacuum tubes stretched all over the length through which high powered laser beams are sent are reflected at the ends by using mirrors and after they reflect back both the waves from each arms cancel out and nothing is detected in the photo-detector, Unless if any gravitational wave happens to pass through the tube it obstructs the beam where it compresses one and creates an interference where now some light is detected in the photo-detector and voila gravitational waves are detected.



If I make this sound easy, it isn't. LIGO is oozing with groundbreaking technology developed especially for the detectors. The interferometer arms, each 4km long, had to be constructed with a correction for the curvature of the earth. Each detector has to be exquisitely isolated from vibrations of the ground and it has to be in a vacuum so that contaminants and gas don't corrupt the laser light between the mirrors. The two detectors have to take data for months at a time, never missing a

single data point and never getting behind. When the detector is distributed over several kilometers, this is a technological challenge in itself. LIGO is an engineering and physics marvel, one of the most sophisticated machines ever constructed. Likewise there are many more factors that contribute in its construction of this device. But we will break here about the working as we have a basic idea of what a LIGO is and what it does. Now let's look at the most important thing like Einstein always said as "Why?" of the question.

What good does it do by going through the entire struggle and detecting these waves? These waves provide us with crucial information regarding the various cataclysmic events from which these waves origin. It has led a new way of examining all the cosmic objects and events and opened a new branch of astronomical study of the gravitational waves. This entire gravitational waves discovery is only a small drop in a vast ocean of knowledge. But it shouldn't discourage us. A man's reach should exceed his grasp. We only get to the moon when we aim for the stars.
stars.

-H.Tanuj Srikanth(III/IV, B.Tech)

If you could squeeze the Earth down to the size of a wedding ring, it would become a black hole. You could even become a black hole, if you were squished down to the size of an atom.*



Gummadikāyā dōngā antē bhujāalū thādūmukunnāttū

There was a rich landlord who had a pumpkin growing and selling business. The business was going well until one day the landlord noticed that his sales were dropping. It was not by much but there was a definite drop in the sales. So, he started going through the entire process of selling to find out what was going wrong.

So he went to the pumpkin farm and saw all the farmers honestly growing the pumpkins and then reaping them. He went to the market and found his shops operating without a glitch. Finally, he went to the storage and found that instead of the hundred jute bags that held the pumpkins, only 98 were there. Every week he went to the storage and found that two bags were missing.

One night he decided to go and find out the thief himself. He went, hid himself behind a bush and saw his night watchmen patrolling the storage alert. He suddenly jumped out of the bushes and shouted aloud. "WHO DARES STEAL MY PUMPKINS?"

All the watchmen came running to him to see what's wrong. He watched all of them as he asked again, "WHO DARES CARRY MY PUMPKINS AWAY? IF I FIND THE HAIR OF JUTE ON YOUR BACK, YOU WILL BE PUNISHED LIKE ANYTHING!"

Immediately, one of the watchmen started touching his shoulders and dusting them off in a jerky manner, trying to look not too guilty and at the same time, trying to get rid of jute hairs from his back. The landlord saw him and immediately knew who the thief was!

So "gummadikayala donga ante bhujaaalu thadumukunnattu" means, trying not to look too guilty when you are confronted for the crime that you have done, but getting caught because the guilt is plain shown on your face.

I would say, if there is a proverb in English, it would probably be like "When asked who's the thief, he started sweating bullets"

*-Ms.B.Suchitra
Assistant professor*



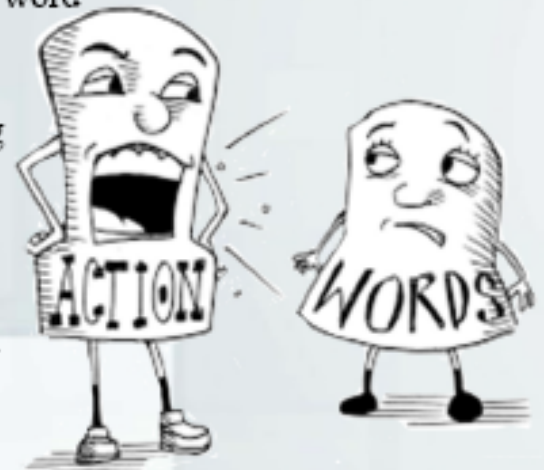
ACTION VS WORDS

“Action speaks louder than words” is an age old proverb with a deep hidden meaning inside. Most of the people have the habit of boasting about what they are going to achieve in the future in an exaggerated form. This sounds crazy but it is true.

People have the habit of boasting that they have achieved a great milestone without actually doing so. It is important to remember that if your achievements are worth noticing, people will sooner or later come to know about them merely through the word of mouth of success.

It is better to take a step ahead and work hard in achieving your dream rather than feeling proud about it.

The day you achieve what you dreamt of and what you worked for your action will certainly speak louder than your words. You will not even have to give an explanation of your achievements. The world at large will come to know.



Take the example of Abraham Lincoln, Mahatma Gandhi, they achieved phenomenal results in their works but never boasted about the fact that it was their leadership that brought a change in the world.

Ego and pride can kill any achievement and in cases reduces the value of any achievement to zero. All the people who remain down to Earth have achieved phenomenal success in the history of mankind. Just follow your dreams and try to achieve whatever you desire; your actions will

-Aditi Mishra (II/IV, B.Tech.)

SUCCESS

The road to success is not straight. There are several things in between. There is a curve called failure, a loop called confusion, speed bump called friends, red light called family and street lights called teachers.

But if you have spare parts called determination, engine called perseverance, insurance called faith and a driver called god. Finally you will make it to a place called success.

-P.Sandeep (II/IV, B.Tech.)

INDIAN NAVY

As all of us know that the most important sector of the country is its Defense. We Indians should be proud that our country's Navy is one of the largest navies in the world. In fact holds a mind numbing 7th place in the world. Indian navy was formerly known as "The Royal Indian Navy" which consisted of over 200 ships of auxiliary and supporters.

The Indian Navy consists of:

- 1 Aircraft carrier
- 1 Nuclear-powered attack submarine
- 14 conventionally powered submarines
- 1 torpedo recovery ship
- 110 patrol boats and many more.

The Indian Navy is one of the best navy forces in the world, capable of facing all sorts of marine threats. The Indian Navy is the naval branch of the Indian Armed forces. The president of India is the Supreme commander of the Indian Navy.

By the end of the 14th plan (2019), the Indian Navy expects to have over 150 ships and close to 500 aircrafts. The Indian navy has initiated Phase 2 expansion of INS Kadamba, the third largest naval base, near Karwar. Phase 2 include the aircraft carrier INS Vikramaditya, raise manpower to 300 officers and around 2500 officers and build a naval air station with a 6000 foot runway.

India has 3 Naval commands

- Western Naval Command at Mumbai.
- Southern Naval command at Cochin.
- Eastern Naval Command at Visakhapatnam

(ENC, Viskhapatnam plays a very important role in 1971 Indo-Pak war, liberation of East Pakistan and creation of Bangladesh.)

-R.N.K.Keerthana(III/IV, B.Tech,)



Our Beloved Teacher

I am Vara Lakshmi from final year. I am really honored to write a few words about Prof. Hanumanth Rao sir, who had 45 years of teaching experience. We all are well known about his talents, knowledge, and other skills. He was indeed an exceptional teacher in every aspect that I could think off. His knowledge about the subject is really huge and he takes a lot of pain to give his best and make each and every student to understand the concepts.

His way of talking in classes was a lot different than others as he used to relate a lot of topics with the current examples and had a great sense of humor. This made his classes interactive as well as useful. Though he had spent less span of time with us, the moment when I got to think of him, the only thing that reminds me is that you are very sincere, strict and disciplined. He expects the same from us.

I got to know his importance only when one of our faculties asked a question that "In your engineering life, has anyone of you learned different textbooks for any subject...?" and then it reminds me the subject CRE he taught us. He is the one who has developed a habit in us of reading multiple textbooks for a subject. I am thankful for bringing this change in us, which really helped for preparing competitive exams.



Felicitation to Prof. G. Hanumanth Rao Sir

We must respect and appreciate for all the valuable skills and knowledge which we have gained from him and thank him for all his efforts and hard work. He put great efforts in instilling tolerance, kindness, patience in us.

The best thing which I learnt from him is that "life is all about experience, experiment and expectation if you use your experience in your experiment to achieve your expectation". I thank our Head of the Department for giving me this opportunity to write a few things about Prof. Hanumanth Rao sir".

Sir Areas of research:

- Chemical reaction engineering
- Biochemical engineering
- Biotechnology

Sir Areas of expertise:

- Central composite design
- Artificial neural network
- Hybrid and ridge analysis.
- Box-Behnken design.
- Doehlert design.
- Central composite design.

-K.S.S.N.V.Varalakshmi(IV/IV, B.Tech.)

"A TEACHER IS
A COMPASS
THAT
ACTIVATES
THE MAGNETS
OF CURIOSITY,
KNOWLEDGE,
AND WISDOM."
-EVER GARRISON

YOUiverse

You are probably sitting there wondering, "what's youiverse?" I'll tell you how I've come to understand it. It's you and the universe within you. We all work with an infinite power. We all guide ourselves by exactly the same laws. The natural laws of universe are so precise. No matter who you are, wherever you are, we're all working with one power. One law. It's attraction.

Everything that's coming into your life is what you are attracting into your life. And it's attracted to you by the virtue of the images you're holding in your mind. It is what you're thinking. Whatever is going on in your mind, you are attracting it to you. The greatest teachers to have ever lived have told us that the law of attraction is most powerful law in the universe. Artists like Leonardo Da Vinci; Great thinkers like Socrates, Plato, Sir Isaac Newton; Poets such as William Shakespeare, William Blake shared it in their writings and teachings.

This law determines the complete order of the universe, every moment of your life, everything you experience in your life. This all powerful law is doing that through your thoughts. You are the most powerful magnet in the universe! You contain a magnetic power within you that is more powerful than anything in this world, this magnetic power is emitted through your thoughts. This particular law of attraction says that like attracts like, so if you think of a positive thought you attract more positive thoughts to you.

A perfect example to demonstrate universe and the law of attraction in action is this: You may know people who acquired massive wealth, lost it all, and within a short time acquired massive wealth again. What happened in these cases, whether they knew it or not is that their dominant thoughts were on wealth; that is how they acquired it in the first instant? Then they allowed fearful thoughts of losing the wealth to enter their minds, until those fearful thoughts of loss became their dominant thoughts. They tipped the scales from thinking thoughts of wealth to thinking thoughts of loss, and so they lost it all. Once they had lost it however, the fear of loss disappeared, and they tipped the scales back with dominant thoughts of wealth. And wealth returned. The law responds to your thoughts, no matter what they may be.

Your life right now is a reflection of your past thoughts. That includes all the great things, and all the things you consider not so great. Since you attract to you what you think about the most, it is easy to see what your dominant thoughts have been on every subject of your life. If you can think about what you want in your mind, and make that your dominant thought, you will bring it into your life. Thoughts are magnetic, and thoughts have a frequency. As you think, those thoughts are sent out into the universe, and they magnetically attract all like things that are on the same frequency. Everything sent out returns to the source. And that source is You.

Think of it this way: we understand that a mobile network transmission tower broadcasts via a frequency, which is transformed into sound on your phone. Most of us don't really understand how it works, but we know that each signal has a frequency, and when we tune into that frequency we listen to that on our phone. If we want, we change the signal and tune into a new frequency.

You are a human transmission tower, and you are the most powerful transmission tower in the Universe. Your transmission creates your life and it creates the world. The frequency you transmit reaches beyond cities, beyond countries, beyond the world. It reverberates throughout the entire Universe. And you are transmitting that frequency with your thoughts! Here's the problem. Most people are thinking about what they don't want, and they're wondering why it shows up over and over again. The only reason why people do not have what they want is because they are thinking more about what they don't want than what they do want. Listen to your thoughts, and listen to the words you are saying. The law is absolute and there are no mistakes. The law of attraction is the law of creation. Quantum physicists tell us that the entire Universe emerged from thought! You create your life through your thoughts and the law of attraction, and every single person does the same. It doesn't just work if you know about it. It has always been working in your life and every other person's life throughout history. The amazing work and discoveries of the quantum physicists over the last eighty years has brought us to a greater understanding of the unfathomable power of the human mind to create. This is a Universe of inclusion, not exclusion. Nothing is excluded from the law of attraction. Your life is a mirror of the dominant thoughts you think. All living things on this planet operate through the law of attraction. The difference with humans is that they have a mind that can discern. They can use their free will to choose their thoughts. They have the power to intentionally think and create their entire life with their mind.

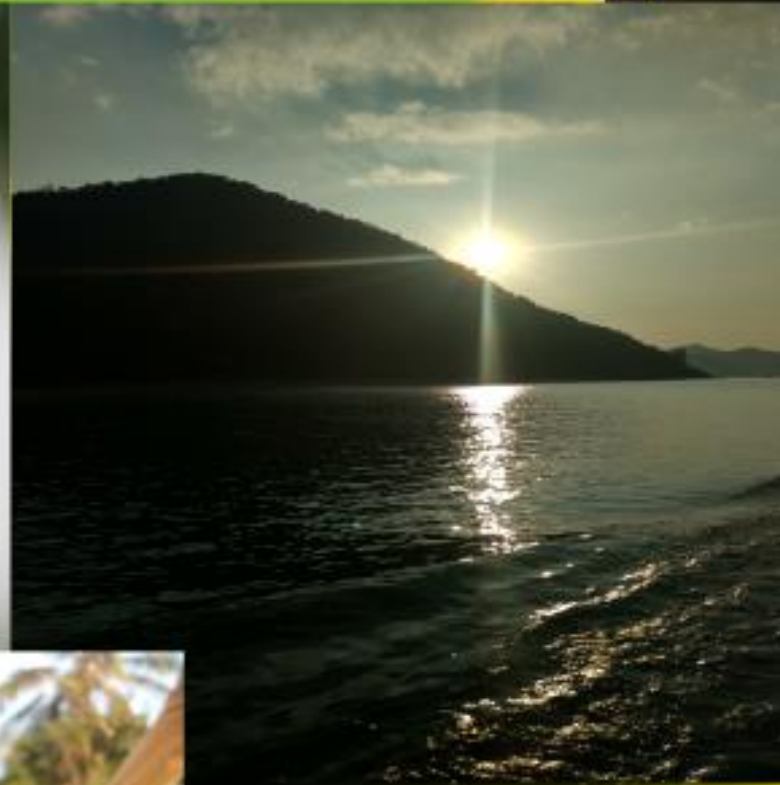
It really does take many negative thoughts and persistent negative thinking to bring something negative into your life. If you worry about having negative thoughts, you will attract more worrying about your negative thoughts, and multiply them at the same time. Decide right now that you are going to think only good thoughts. At the same time, proclaim to the Universe that all your good thoughts are powerful, and that any negative thoughts are weak. To become aware of your thoughts, you can also set the intention, "I am the master of my thoughts." Say it often, meditate on it, and as you hold to that intention, by the law of attraction you must become that. Your thoughts become things.

It's impossible to monitor every thought we have. Researchers tell us that we have about sixty thousand thoughts a day. Can you imagine how exhausted you'd feel trying to control all sixty thousand of those thoughts? Fortunately there's an easier way, and it's our feelings. Our feelings let us know what we're thinking. Your feelings are your greatest tool to help you create your life. Your thoughts are the primary cause of everything. Everything else you see and experience in this world is effect, and that includes your feelings. The cause is always your thoughts.

You have the power to change anything, because you are the one who chooses your thoughts and you are the one who feel your feelings. It is helpful to use your imagination and make believe that you already have what you want. Play games of having your thoughts and you will feel better about thoughts; as you feel better about it, more will flow into your life. Everything is energy. You are a spiritual being. You are energy, and energy cannot be created nor destroyed it just changes form. Therefore, the pure essence of you has always been and always will be. The Universe emerges from thought. We are the creators not only of our own destiny but also of the Universe. The universe is within you. The more you use the power within you, the more you will draw it to you and you will be the power, you will be the perfection, you will be the wisdom, you will be the intelligence, you will be the love, you will be the joy.

-B.V.N.S.G.Sudarshan (I/IV, B.Tech.)

CHEMINEER CLICKS



P.Sampath kumar
(III/IV)



From Notebook to Canvas



HOW TO TAKE 100% RESPONSIBILITY FOR YOUR LIFE

Decisions can be taken in spur of moment but commitment is what matters and it is how we stick to that decision. Our actions and behaviour are based on our commitment and it defines our quality of life. Decisions should be spontaneous. If we hesitate even for a few seconds chances are that we will regret the decision in future.

“He who hesitates is lost”

Decisions should be spontaneous; generally our gut feeling is always right so we have to trust it and take our decision. Commitment is seeing through your decision till the end. Generally you lose commitment in the process of achieving your dream.

What most people should do is do ahead of time is writing down your goals and the outcomes you want to achieve from your goal. Whenever you feel confused or distracted you see the goal and outcomes you want to achieve from your dream you will get the similar energy you had before. I hope you all achieve your dreams.

-M. Veda Pranitha (II/IV, B.Tech.)

Social Awareness

Social Awareness is process of knowing what is happening in the community in which we live. Understanding other people's feelings is central to emotional intelligence. Awareness is knowledge and knowledge is power. This means by creating awareness among people, we are empowering them to face certain difficult situations and help them to overcome those situations. More importantly when you respond to the needs and feelings of other people, you gain their trust.

The youth can bring out changes in social situations. But without social awareness how can students with best grades and bunch of formulae in their heads will be beneficial to human? Students by nature are dynamic, energetic, and adventurous and can convince others by their way of going about things from students to peers, then to families, friends and relatives to locality.

The students of today's generation lay the foundation stone of future society. The society should give the love and encouragement to them and see that their studies are not unduly hampered.

-Neha Riya Siby (II/IV, B.Tech.)

FARMER

Once upon a time farming was the only source of occupation for the people. Later education came and played a key role in the development of society. In olden days people used food as a currency as there was no concept of money. Barter system was widely used, that is, instead of money people exchange things for things. Now-a-days the literacy rate has increased and people are leaving the occupation of farming and agriculture. If this continues there won't be anyone to produce food for us. Now-a-days chemicals are being used to get higher yield, to reduce the growth of insects and pests. But because of this earth is being depleted of its nutrients and natural resources with each passing day.

In olden days farmers were healthy with no diseases and their life expectancy was beyond 90 years but now even small children are being affected with diseases. Hence life expectancy is also reduced. The main reason behind this is the depletion of nutritious food. Farmers are also committing suicides due to loss in crop but government is not caring for them. Only 70% of the lot are getting benefited. So the government should take severe action and help the distressed farmers before it's too late. We have to support our farmers. The reason for our happiness is a farmer. So be thankful and support farmers.

JAI KISAN

-Gundu Hemanth(III/IV, B.Tech.)



Technical Work @ Chemineers

Batch-1

Design of Bioreactor for producing Biogas

Anaerobic digestion of energy crops, residues and waste is of increasing interest in order to reduce the greenhouse gas emissions and to facilitate a sustainable development of energy supply. Production of biogas provides a versatile carrier of renewable energy, as methane can be used for replacement of fossil fuels in both heat and power generation and as well as vehicle fuel. For biogas production, anaerobic digestion is applied using a bioreactor/bio digester. From research it is found out that KVIC biogas plant is more efficient than other types. Hence KVIC biogas plant is considered for production of biogas using kitchen waste.

Batch-2

Water Purification using Graphene Oxide

For preparing graphene oxide, we should prepare graphene powder by using chemicals in this case is hydro sulphuric acid, KMnO_4 , water, hydrochloric acid. After 3 hours of mixing we get graphene oxide. Then we coat with sand which is retained in 200mesh. After the wash with HCl to remove impurities and then mix with graphene oxide and keep in oven about 16 hours to get coated, then set up to get more purity of the water and check the pH, TSS, TDS. For purification of graphene oxide, wash with mild warm water to change the odour and colour.

Batch-3(A)

Comparison studies of photo catalytic degradation of E.Coli in water using nano particles

Drinking water is basic necessity of mankind. According to World Health Organization (WHO), 71% of global population (5.28 billion people) using safely managed drinking water remaining rely on unsafe water. Because of increasing population, water is being contaminated with bacteria, viruses, fungi and several water borne diseases like diarrhoea, nausea, dysentery etc. Though there are many technologies to treat water, but they were limited by certain limitations. Photo-catalysis is an Advanced Oxidation Process (AOP) which involved the usage of semi-conductor photo-catalyst (TiO_2) and light source (UV). Studies were conducted to degrade E.Coli present in water by changing the parameters like pH, size and dosage of photo-catalyst. The immobilization of catalyst helps in the optimization of downstream operation due to which there is scope in decreasing the usage of catalyst and in turn reduces environmental pollution.

Batch-4

Extraction of Calcium Pectin from Fruit Pomace using HCl and its optimum conditions

Pectin is primarily made up of D-galacturonic acid joined by α (1-4) glycosidic linkage. Pectin being a major concern for water pollution it is removed/recovered in the form of calcium pectate from the wastes being discarded (Like fruit pomace from fruit juice shops etc...). The pectin compound was extracted as calcium pectate from fruit pomace using HCl and the following parameters varies for optimum conditions i.e. Temperature, pH value, drying time and concentration of HCl. The design of experiment performed using Central Composite Design of Response Surface Methodology for factorial optimization.

Batch-5

Manufacture of Acetylene by Carbide process

Acetylene is a colorless gas with garlic odor produced from the calcium carbide CaC_2 , which is obtained from calcium carbonate (CaCO_3). Further the CaCO_3 is heated in lime kiln at about 825°C which forms calcium oxides (lime) liberating CO_2 . Calcium oxide is then heated in electric furnace using coke to produce calcium carbide, and then calcium carbide is hydrolyzed producing to produce acetylene. This concept comes from the 'Inorganic Theory of Petroleum'.

In the present context, difficulties are being faced with the crisis of fossil fuel depletion and environmental degradation. Conventional hydrocarbon fuels used by internal combustion engines and many fields like transportation, agriculture, and power generation but these leads to pollutants like HC (hydrocarbons), SO_x (Sulphur oxides), and particulates which are highly harmful to human health. CO_2 from this increases global warming. Promising alternate fuels for internal combustion engines are natural gas, liquefied petroleum gas (LPG), hydrogen, Acetylene, producer gas, alcohols and vegetable oils. Among these fuels, there has been a considerable effort in the world to **develop** and introduce alternative gaseous fuels to replace conventional fuel by partial replacement or by total replacement. They have high self ignition temperature; and excellent spark ignition engine fuels. Moreover in view of wide area of research, use of acetylene as source of fuel could be most appropriate field to research as alternative source of fuel and can be used as the synthetic fuel for transportation.

Batch-6

Applications of ceramic membrane

A membrane is an inter-phase, it allows some things to pass through but stops others. Such things may be molecules, ions or other small particles. Ceramic membranes are a type of artificial membranes made from inorganic materials such as Al_2O_3 , zirconia oxides, Silicon carbide and clay etc. used in membrane fabrications for liquid /gas filtration. Ceramic membranes with distinct morphologies are fabricated using low cost inorganic precursors such as kaolin ($\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$), Quartz, CaCO_3 etc. Membranes consist of kaolinite which is clay material. It is a layered silicate mineral with one tetrahedral sheet of silica linked through O atoms to one octahedral sheet of **alumina** octahedral. This project also includes reactor design for the purpose of applications. The reactor was made up of Stainless Steel material to withstand higher temperatures and pressures up to 50psi. The major applications includes saltwater separation, removal of dye and oil from water.

Batch-7

Removal of fluorine content from drinking water

Fluoride contamination in drinking water due to natural and anthropogenic activities has been recognised as one of the major threats to human health. Presence of fluorine in low concentrations are beneficial to mankind. On the other hand excessive fluorine concentrations may lead to dental problems. Among various techniques adsorption technique is widely explored. In adsorption different adsorbents have different efficiencies to adsorb particles. However still there is a need to find out the practical utility of such developed adsorbents on a commercial scale. Many investigators conducted experiments and developed various low cost technologies to remove **fluorides** from water. In this experiment fluorine removal from water by adsorption is studied using brick powder as an adsorbent.

Batch-8

Culture of 'SPIRULINA PLATENSIS' under optimised conditions in a Photo bioreactor

Spirulina platensis is a biomass of free-floating, filamentous blue green algae which is photo autotrophic in nature. It can be directly consumed by humans and other animals, it is known for its high protein content which is in the range of 55-75%. Spirulina grows in saline water at a pH of 8-10 and at a temperature of 35°C. It can be used as an effective counter measure against malnutrition and even has the potential to serve as a super food in future. After doing much theoretical survey, we intend to study its specific growth at optimised temperature, pH and light intensity while varying the concentration of CO₂. We fabricated a prototype photo bioreactor in our laboratory for growing Spirulina with all the conditions being optimised and using an ARDUINO microcontroller to monitor CO₂ concentration in reactor.

Batch-9

Drying Characteristics of Snake Gourd

Drying is an essential process for agricultural products. Various drying methods are employed to dry different products. Care must be taken in choosing the drying method. Studying and comparing traditional drying and other drying methods for reduction of drying time and to significantly improve product quality in terms of colour and texture. An experimental study was performed to determine the drying characteristics of snake gourd using hot air oven and infrared light. Another method is the sun drying method. The test samples were dried in a laboratory oven at temperature range of 50-90°C and observed the drying characteristics. Same experimental method is repeated with infrared drying for 90 minutes. Compare drying characteristics of both as per experimental result. Infrared drying is suitable which gives best results.

Batch-10

Food spoilage and its preservation

Idly, a traditional breakfast food of South India based on rice-black gram combination is a fermented, leavened, soft, spongy, textured product. Idly batter has very short shelf-life because of its high moisture content and live fermentation. There is a demand for ready-to-cook idly batter in packaged form with moderate shelf-life. Thermal preservation is not feasible as the batter coagulates or idly is formed on heat application. Experiments are conducted on preservation of idly batter by using NISIN as a bio-preservative at ambient conditions and refrigerated conditions. The pH, acidity levels, colony count factor are the parameters observed. The experiments for different food products using NISIN as a bio-preservative are conducted with different parameters taking into account.

Batch-11

A comparative study of green corrosion inhibitors for zinc metal in sea water

The inhibition behaviour of Enterbolium cyclocarpum and Asafetida leaves extract on the corrosion resistance for Zinc metal in sea water medium has been studied galvanometric (or weight loss) measurements. The inhibition efficiency increases with increase in immersion time period, effect of pH and different extract concentrations due to the formation of time dependent protective film on sink surface, which is due to absorption of the inhibitor molecules. Asafetida extract showed better results when compared to Enterbolium cyclocarpum.

The theory of soul

Desire is the motivation for our rebirth. A strong and intense desire to be reborn is the main reason for our birth. Humans leave their mortal bodies with many desires in the unconscious mind and those desires motivate them to come to this platform again and again. So the rounds of birth and death depend on the human motivation called desires. If we learn to reduce our desires to a zero, all our motivations will be over and there will be no karma. There will be no bondage and the human being will not be bonds for the fruits of karma.

We live in a world of fear, anxiety, stress and strain but these are all self-created. The delusion and ignorance that are created by not realizing the true nature of the self is the main cause of all miseries. When one learns not to identify oneself with the objects of the world and constantly becomes aware of the reality or centre of consciousness within, one considers birth and death as voluntary actions.

As one changes one's pillow cover or book cover, likewise one casts off one's body. Casting off the body is called death and assuming a new garment is called birth.

Attachment seems to be the mother of all miseries. When a human being gets attached to the body, he brings pain to his individual soul. But, this pain and attachment can be removed by understanding that the body, breath, senses and mind are like instruments of individual soul. He should learn the technique of living in the world yet remaining out of it.

When one knows about all the things of the world, even his body and mind are his instruments and he learns how to use them by realizing that all the things that he has are for him, but not his, then the strong sense of attachment disappears and the light of wisdom dawns. Such fortunate ones attain enlightenment and freedom from worldly fetters, as well as from the rounds of rebirths and deaths.

-B.V.N.S.Pavan Kumar(I/IV, B.Tech)

MOTHER'S EMOTION

A long ago, I went to my grandmother's home for summer vacation. The very next morning, I was woken up by the rooster. When I was going outside the home, I saw, the early morning dew through which the tiny twinkling rays of the rising sun is falling on my eyes and I opened them by shutting all my night mares. The cool morning breeze from the farm and sweet sound of the birds from near and distant woods made the morning more pleasant. All the trees were swinging and seemed to be dancing. All the birds got ready to leave their homes to go in search of food.

Then I saw a dove sitting on one of the branches of a coconut tree. I thought, it was speaking to its children. Her children were making too much sound. The sound felt like the children were in grief due to their mother leaving. As I could see them, she went closer to her children and warmly covered them with wings. She flew away from there by endorsing them to her male bird. It felt so pleasant and peaceful. I continued to spend my day, by doing all my works by sitting under that tree.

At 3:40pm, I saw a person coming towards our home to take coconuts from the trees. Then, I asked him to leave that tree. He obliged and then I stood there for some time and later I went to take a nap for 20mins. Later, I came back and saw that he was climbing the tree which I told him not to and i panicked. But he came down with the coconuts without harming any of the birds. No sooner did he reach the ground, than the branch from that tree had suddenly fallen down. The three little birds were killed by that branch.

After an hour, the mother bird came with food and was searching for her children until the next morning.

Dear friends. I have shared what had happened on that day. And now, it's your turn to think. WHOM TO BLAME? HOW TO GET DIVERTED? ONCE EMPATHIZE YOUR PARENTS WITH THAT DOVE. JUST THINK, HOW YOUR PARENTS WOULD SUFFER IF YOU ARE NOT THERE INFRONT OF THEM.

-V.Madhavi latha (III/IV, B.Tech.)

SHADOWS

Midnight note struck, a strange melancholy,
And a few stranded pedestrians ran for shelter...
Rain was now falling, neither thick nor cold,
As I turned around, to see my shadow falter...

Slowly I made my way, amid the street lamps,
That cast misty glow, alternating darkness of light...
I drew my cloak closer, though it wasn't chilling,
My shadow laced to me by the seamstress light...

I sat in a corner, brooding over life,
And turned to face my shadow, dutifully beside me...
I thought "will it be there, even after I die?
As death breaks all bonds, will my shadow abide?"...

I bent a little to touch it, as it did the same,
Though there was none around, it felt foolish to do so...
With a sigh I got up and continued forward,
The temptress journey of life, chaperoned by my shadow...

*-Ms.B.Suchitra
Assistant professor*



Ending Homelessness

Be a part of Ending Homelessness Street is a social enterprise that is working tirelessly to forge a framework of solutions to end homelessness in urban areas by factorization of homeless. We do events like feedings, street stores etc., to interact and infer on ground factors of homeless which we use to materialize solutions. We invite multiple entities to use street as a platform to conduct and channelize their activities to curb homelessness. Based on the data procured from activities, we design solutions and execute them on streets with our volunteers who strongly share and believe in our vision. We also train and hire homeless to manufacture and sell few products.

CONTACT US

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Nāmbi Nārāyaṅ

While writing about this person, i got stuck at one point that while all other nations struggle to reach Mars with several attempts involving huge capital cost of 671 million us dollars and 19 attempts, Russia with 117 million and 16 attempts but our beloved nation India has successfully completed "Mission to Mars" by a single attempt with 74 million dollars on Nov 2014 and the person responsible is none other than "Nambi Narayan".

And moreover his experience is four times my age. He has done his graduation in 1965 at Thiagarajar college of engineering. He started his career in ISRO in 1966.

It is like a story straight out of a movie but his life that has been hanging in the balance for over two decades. He was arrested on charges of espionage.

The Supreme Court held that he was wrongly framed in an espionage case. Unnecessarily arrested and harassed and for that he was awarded 50 lakhs as compensation for the mental cruelty he suffered all these years.

Though he faced many struggles in his life his smile and confidence never faded away.

-Sepana Anitha(III/IV, B.Tech.)



A thought before EMPATHY

Walking on roads, all of us find people shattered with torn clothes and a broken heart. All they are left with is a hope to live and a person to greet. Unaccepted by family, Homelessness wasn't their choice but fate. Shown below is the picture I've captured when I've been to a medical camp for the homeless. Any person with blood flowing in his veins would donate him money, few donate food, few feel bad for his condition. When it comes to the truth, your money, your concern, your grief isn't actually working. The money you give sadly is spent on alcohol, tobacco and other drugs. Yeah, a downcast truth. So, the next time you donate something, give it to a person who deserves it. Homelessness wasn't their choice, but definitely not their destiny. If you have money, donate it to shelters



-Reshma(II/IV, B.Tech.)

Job Interview

Officer: What is your name?

Candidate: M.P Sir.

Officer: Speak clearly.

Candidate: Mohan Pal, sir.

Officer: What is your father's name?

Candidate: M.P Sir.

Officer: What does it mean?

Candidate: Man Mohan Pal, sir?

Officer: What's your native place?

Candidate: M.P Sir.

Officer: Is it Madhya Pradesh?

Candidate: No, Munnar pal.

Officer: What is your qualification?

Candidate: M.P Sir.

Officer: (Angrily) What is it ?

Candidate: Matric Pass, sir.

Officer: Why do you need a job?

Candidate: M.P Sir.

Officer: Now what does that mean??

Candidate: Money Problem, sir.

Officer: Describe your personality.

Candidate: M.P, Sir.

Officer: Explain clearly.

Candidate: Mind blowing personality, Sir.

Officer: This discussion is now over, you may go.

Candidate: M.P Sir.

Officer: What is it

Candidate: My Performance, Sir.

Officer: M.P That is Mentally Punctured.

Candidate: M.P Sir.

Officer: Now what's thissss.....?

Candidate: My Pleasure, Sir.

-I.Aniketh(I/IV, B.Tech.)

Easy yet Difficult

Easy yet Difficult

It is easy is to judge the mistakes of others,
But it is difficult to recognize our own mistakes

It is easy is to talk without thinking,
But it is difficult to restrain our tongue

It is easy is to hurt others,
But it is difficult to ask for forgiveness

It is easy is to set the rules,
But it is difficult to follow them

It is easy is to enjoy life every day,
But it is difficult to give it real value

It is easy is to promise,
But it is difficult to fulfill it

It is easy is to preach,
But it is difficult to practice

It is easy is to make mistakes,
But it is difficult to learn from them

It is easy is to say we love,
But it is difficult to show it every day.

-I.Aniketh(I/IV, B.Tech.)



STILL COUNTING

The most awaited and nervous day for any engineering student is not his exam day but rather his first interview.



I would like to share about my first interview experience. My first ever interview was during campus placements for Infosys. If anyone ever tells you it'll be surreal don't believe them, because it will be far more than that. I was all set for my interview, wore my best self not just my best outfit that day. I prepared for it longer than I can remember. I was ready to bombard them with my answers which I thought were the best ones anybody could come up with. But the moment I sat I realized it was going to be totally different from the mock interviews I've been through.

I realized that no amount of preparation was enough for an interview. My interviewer had a really calm demure. He asked me really simple questions and I felt it was more about my spontaneity and wit that helped me more than the preparation.

The moment I came to know that I have cleared my written test, for a blink of an eye I was in a shock. I announced the names of my friends who cleared the test and saw their happiness. In no time we were taken to the interview room where I started rewinding my life so that I can turn the interviewer onto my side. The instant I entered the interview room I'm in a blank mood and all the preparation that I have done has lost. But I've honestly represented myself with my goals, achievements and many more. Some of the questions I was asked were 'Tell me about yourself', 'My achievements', 'My preferred subjects', and they have discussed the details like salary package, work location, perks and some other topics and I have posed some queries from me, soon the chit-chat came to an end and I've stepped out, even though my pulsations didn't terminated. Subsequently after about 10 days there is a talk that the results are out, and my thoughts be like "let the results be declared officially" and soon they are out, and I'm delighted to hear that I'm the only one to be selected.



And I'm writing this from my work station at NCL industries.

Alumini Byte



Manikanta vemavarapu
(2013 – 2017)

Achievements-applauds, opportunities-thoughts, this is what I gained from Anits. My College days are unforgettable and in fact those days are the most happiest & fruitful days of my life. I got infinite love & moral values from my teachers, the lessons I learnt showed me the path to success. My teachers were like a backbone for me, friends were the reason for my smile and juniors were like younger siblings. Everyone recognized my talent and welcomed me with open arms always. Chemical Engineering department made me the person who I am today... Bold & confident...!! One Message to my juniors, our head of the department is the only person who encourages our talents without any academic criteria so, utilise this opportunity wisely. Enjoy your college days and be proud to be chemical engineers.

I feel overwhelmed with gratitude to be alumni of Chemical Engineering Department. Every professor, every friend and every experience in my college brought me to where I am today. It made me a more confident person and led me to the path I wanted to be on. My time in college has enriched my life in many ways and gave me an opportunity to enhance my skills for which I will always be thankful. I experienced many beautiful memories and faced difficult times but in the end it was all worth it.

To all my juniors, enjoy your college life to the fullest and try to make the best of every opportunity.



Hasmita T.
(2014 – 2018)

I am very happy to share my memories in ANITS. Chemical Department is just like a small family with mixed emotions. All my teachers, friends and faculty members are very supportive. They guide us and try to make ourselves to follow the right path. I am really thankful to all the people in the department from teaching to non teaching staff.

Finally I would like to give a piece of advice to my juniors, "Never give up on your dreams, enjoy every moment but remember set your goal in life and work hard to achieve it." I wish you people also cherish more memories in this college.



K. Ramya Krishna
(2014 – 2018)

This is something I always wanted to share but never got around it. I joined in ANITS, Chemical Engineering Dept. On the very first day in the college I was a total stranger but on the last day I was the happiest one with a great bunch of friends, immense knowledge and lots of memories to cherish.

Those four years of my graduation in ANITS was one of the best experiences I ever had. College life is best enjoyed when you have peaceful atmosphere, supportive faculty, stress-free curriculum and a bunch of best friends. This four year journey has taught me how to face challenges and keep moving forward. Apart from curricular activities, I learnt that one should actively participate in extra-curricular activities and should have social responsibility.

I thank all my professors who gave their immense knowledge. Their constant support boosted up my confidence. Technical fests and workshops and made me a successful graduate with a job offer before leaving the college.



*- P. Sai Sudha
(2014 – 2018)*

After completing my intermediate, my next choice was to become an engineer. Luckily I got a wonderful opportunity in ANITS to join the Department Of Chemical Engineering. In my four years of graduation, I learnt many things from experienced faculty and friendly seniors. Faculty are very supportive and friendly. Technical fests and workshops are the important things to talk about where I learned a lot and enjoyed even more. Strict rules are also applicable when you enjoy too much.

I thank all the faculty members for their huge support and great knowledge which helped in shaping myself into a successful person in life.

Thank you ANITS.



*S. Naveen
(2014 – 2018)*

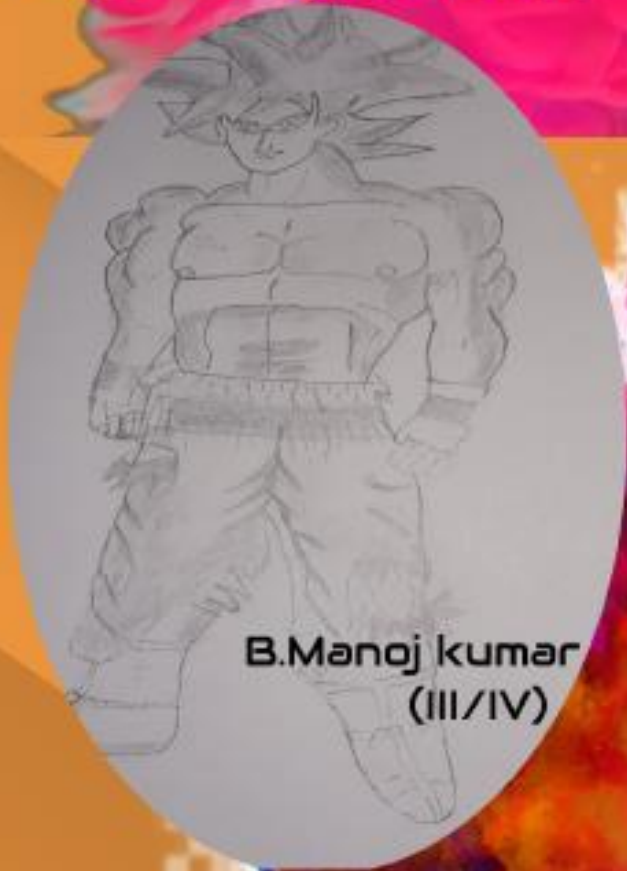
Firstly, I am very thankful to the department for giving me knowledge and for exfoliating the fears in me.

ANITS being against ragging gave me a lot of opportunities to interact with my seniors, who helped me in increasing my knowledge. This is the only place where we can find ourselves and try to convert our negatives into positives.



*Akhila Reddy
(2014-2018)*

From Notebook to Canvas



B.Manoj kumar
(III/IV)



S.Gowtham (I/IV)



S.Krishnaveni (III/IV)

CHEMINEER CLICKS



H.TANUJ SRIKANTH(III/IV)



J.Sasidhar (III/IV)



Sunshower Photography



అమరులైన ఓ వీరులారా

అమరులైన ఓ వీరులారా

నా భార్య రోదిస్తోంది. నీ తండ్రి కన్నీరు మున్నీరవుతున్నాడు. నీ వారసులు వాపోతున్నారు. కానీ చావు చివరి అంచులో కూడా భయాన్ని వదిలి చిరునవ్వుతో భరతమాతలై ఊపిరి వదిలిన మిమ్మల్ని చూసి నా రోమాలు నిక్కుపోతుచుకున్నాయి.

నాలో ఇప్పుడు సహనానికి, స్వాభిమానానికి మధ్య ఒక యుద్ధమే జరుగుతోంది. మీ త్యాగానికి తరిగి ఎమివ్వుగ* లమా అని నా మనస్సు నందిర్రతలో ఉంది. మీ మృత్యువును జీర్ణించుకోలేని నా కనుల సంద్రం అవిరైపోయింది నా నవ్వు నన్ను వీడి వెళ్ళిపోతుంది. నిరాశ నిట్టూర్పుల ఊపిలో నా హృదయం ఊగినలాడుతోంది. మీరు లేని నా దేశం శిశిర ఋతువులోని వృక్షంలా వెలవెలబోతోంది. కళావీహీనమై పోయింది. కానీ కానీ ఓ సైనికుడా

నాలో మీరు నింపిన అత్యున్నత్యం, ప్రతి పౌరుడూ సైనికుడే అంటూ మీరు నేర్పిన తత్వం, నిద్రాహారాలు మాని మరీ నా కుటుంబానికై మీరు ఇచ్చిన భైర్యం, ఈ కట్టి కాలేవరకూ మరువను. తీవ్రస్వరణ పోరాటం లాంటిది కాదు నీ పోరాటం, నిరంతరం ప్రపంచాన్ని జ్వలించజేసే తేజోకిరణం వంటిది నీ పోరాటం, అంత కుమించి నిష్పల్కువమైనది నీ అశయం. నీ అశయ సాధనకై ఎక్కవేకలా కృషిచేస్తానని, అత్యసాక్షిగా ప్రమాణం చేస్తున్నాను. నీ కుటుంబానికి నీవు లేకపోవచ్చు కానీ దేశం అంతా ఉంది.

ఇట్లు

మీ పాదాక్రాంతుడు.

-Bharadwaj (IV/IV, B.Tech.)

నా కల కథై మీ కొరకు

మన కల నిజం కాకపోవచ్చు. ఒక కథ లాగ* మిగిలిపోవచ్చు కానీ ఆ కల నుంచి మనం నేర్చుకునే నీతి ఒక సత్యంగా మారవచ్చు.

నాకు వచ్చిన ఈ కలలో పాత్రలు తక్కువ, కానీ నా కళ్ళల్లో మిగిలిన భావోద్వేగాలు ఎక్కువ. నేను ఈ అర్థికల్ కి "నా కల కథై మీకొరకు" అని పేరు పెట్టటానికి కారణం ఒక్కటే, ఇది చాలామంది కలలో కథగా మిగిలిన సంఘటనే

సాధారణంగా మనకి వచ్చే కలలు మరపులాగా మిగిలిపోతాయి. ఉదయం కళ్ళు తరిచే సరికి అవి గోర్తుండవు. కానీ నేను కళ్ళు తరిచి పావుగ* ంట అయింది. అయినా నేను ఇంకా కలలోనే ఉన్నాను.

నా కల నిజం కాదు, నిజం కాకపోవడమే వుంది. ఆ కలలో వచ్చిన అమ్మాయి నాకు దగ*

ర వ్యక్తి అందులో ఆ అమ్మాయికి ప్రమాదం జరిగింది. హాస్పిటల్ లో ఉంది. హృదయంలో తెలియని బాధ నా కళ్ళలో మిగిలిన కన్నీరు, నా బాధ చేపితే అర్థమయ్యేది కాదు. చాలా మంది నన్ను ఓదారుస్తున్నారు. కానీ వారి ఓదార్పు నా గోండే బరువుకు తూగ*

లేదు. నా కల కథగా మారునా? అనే ప్రస్నకు నా కన్నీరు ఇవాబు. నేను కల అని పీలించే ఆ కథలో తను కోలుకుంది అని ఆసీస్తున్నాను. ఎందుకంటే తను కోలుకుందో లేదో నాకు గోర్తులేదు.

నా ప్రకారం ఒక మనిషి మీద మనకి ఇంత ప్రేమ, ఇష్టం ఉంటుందా అని చెప్పటానికి నా బాధ ఒక సాక్ష్యం. ప్రేమకు సాక్ష్యం కన్నీరే తను ఎవరో చెప్పటానికి నేను ఈ అర్థికల్ రాయలేదు. నా భాదను చెప్పటానికి మాత్రమే రాసాను.

-Sunil (II/IV, B.Tech.)

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