

NEUTRALIZE

EDITION MARCH-JUNE 2020



HOD's Message

I am very happy That our Chemical Engineering department is releasing 3rd Issue of 'Neutralize' as a forerunner of department activities. It is a technical platform to bring out the hidden talents of students and faculty. The major strength of the department is a team of well qualified and dedicated faculties who are continuously supporting the students for their academic excellence.

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ACHIEVEMENTS OF STUDENTS

IN GATE 2020

Graduate Aptitude Test in Engineering (GATE) is an all Indian examination administered and conducted jointly by the Indian Institute of Science and 7 Indian Institutes of Technology on behalf of the National Coordination Board-GATE, Department of Higher Education, Ministry of Human Resources Development (MHRD), Government of India.

Almost 19,000 Chemical Engineers appear in GATE exam every year. Our department feels immense pride to inform and announce that our final year student, Mr. Janak Patel has secured All India Rank 258 in GATE 2020 organized by IIT Delhi. He got 63.67 marks out of 100 and his normalized GATE score is 685. He has secured first rank in Chemical Engineering all over Gujarat.

We congratulate him on this great success and wish him all the best for his future endeavors.

ACHIEVEMENTS OF STUDENTS

IN EXTRA CURRICULAR ACTIVITIES

Along with studies, students are also actively participating & achieving feats in extra-curricular activities. Punjab University, Chandigarh had organized an event for the mono act "SHOR", where around 60 Indian participants participated. In the event, each participant had to make a video of 3-4 minutes and on uploading it on online platforms, submit them to the organizers. We feel immense joy to inform that one of our students Kena Dave (4th Semester Chemical Engineering Department, Silver Oak University) secured 3rd rank in the Mono act. She was the only participant from Gujarat to secure a place in top 10.

XITIJ TEME (Play of S.S Collage of Engineering, Bhavnagar) organized an art event involving different categories of arts like music, theater, dance, photography, etc. Among which, Kena Dave (4th Semester Chemical Engineering Department, Silver Oak University) took part in Mono act – Theatre and secured 1st rank. The script was already provided to all the participants. The mono act played by Kena Dave was a monologue 'વેલકમ દેશમાં' written by Saumya Joshi. The department congratulates her on these wonderful achievements and wishes her luck for a bright and prosperous future.

Success is measured not so much by the position one has reached in life, as by the obstacles one has overcome while going to succeed.

-Booker T. Washington

ACHIEVEMENTS OF STUDENTS IN ONLINE TEACHING PLATFORM

The Pandemic has slowed down the flow of education and not just economy as it has spread widely throughout the world affecting our lives majorly. Most of the activities are performed online as a repercussion of pandemic, resulting in establishment of many online platforms for office work, online education & shopping etc.

During this period, many e-learning professional courses were introduced for free by Educational institutions or Government. Silver Oak University provided one of the such platforms – Coursera, a platform where online certification courses are available in areas such as art and humanities, data science, math and logic, business, information technology, personal development, health have been highlighted. From the Chemical Engineering Department, around 94 students out of 102 students had selected more than 75 different courses. At least 40 students have successfully completed their course/s. Apart from their field courses, the students have also learnt many other professional courses from this platform and it will surely help them diversify their skills in their respective careers.

ACHIEVEMENTS OF STUDENTS

“ MINI PROJECTS BY DIPLOMA ENGINEERING STUDENTS ”

The students of 3rd semester Diploma of Chemical Engineering are working on mini projects to improve their technical knowledge and understanding. Students are working on this project topic like, Equipment Design, Process Simulation software, Waste Management and Separation Techniques.

Learning Chemistry with live demonstration always clears your concepts. Keeping that in mind - Darshit Nakrani, Avani Raval and Nishtha Patel, are working on establishing equipment that demonstrates the periodic table properties as their mini project, under the guidance of Mr. Nishit Shah, Assistant Professor (Diploma Chemical Engineering) at Silver Oak University. They were inspired for the idea by one of the videos of The Royal Institution.

Similarly, all the students of 3rd semester Diploma of Chemical Department, on creating groups, are working on creative mini project under a faculty as their guide.



WORKING MODEL BY STUDENTS

FACTS

- An IBM engineer by the name of Don Eigler became the first man in the history to control the movement of an atom using the atomic force of a microscope. He was able to achieve this feat in the year 1989 only.
- Vanadium oxide is a weird material which is a conductor of electricity but it is not a heat conductor. This was something completely unprecedented in the world of physics until it was discovered..
- The reason why onions makes us cry is because of the release of propanethial-S-oxide which is an irritant of the lachrymal glands, which release tears., which is an irritant of the lachrymal glands, which release tears.

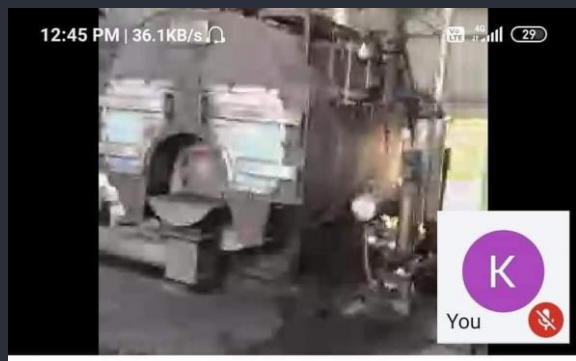
The first step to knowledge is to know that we are ignorant.
-Socrates

"THE VIRTUAL VISIT"

(FACULTY AT THEIR BEST)

Day & Date: Thursday, 14th May 2020

Session conducted under: NEEM TREE CLUB



SCREENSHOTS OF VIRTUAL VISIT

Even in the times of pandemic, Chemical Engineering Department of Aditya Silver Oak Institute of Technology has ensured to give their students the best of experience and education virtually. They successfully organized a webinar on "Career Opportunities in Rubber Industry" for the students of 4th, 6th, and 8th semester. The session was addressed by Mr. Vatsal Pandya. He is currently Technical Manager at Vasant Rubber Industries in Surat. The session was very attractive, informative and was conducted in very innovative manner. The speaker conducted the session from the industry where he explained the working of whole plant by showing the equipments and the processes carried out at each step. He described the production process of one of the key products of the aforesaid industry i.e. Butyl Rubber Tube. He also enlightened the students with the future trends and career opportunities in rubber industry. The session was a complete success as the students got benefitted in terms of both theoretical and practical knowledge. Kudos to the faculties of the department and Mr. Vatsal Pandya.

SESSION ON HOW TO WRITE RESEARCH PAPER

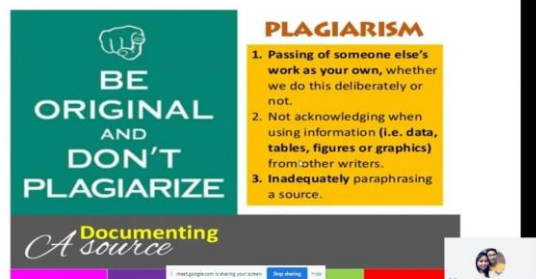
(FACULTY AT THEIR BEST)

Day & Date: Monday, 11th May 2020

Session conducted under: NEEM TREE CLUB

Session brief:

The most tricky and difficult part faced by students after completing the project is to write its research paper. To acknowledge that and help the students for the same, a session on "How to write research paper" was organized by Chemical Engineering Department of Silver Oak University. The session was conducted by Mr. Mohammad Imran, Assistant Professor of Chemical Engineering Department. He started the session by discussing about the Manuscript and the basic difference between Research paper and Review paper. He further explained the General structure of a research paper and its details. He talked about how language plays an important role in an article and how it can create a greater impact. After the writing part the next important part is Publishing the research paper. So further he explained about how to select the appropriate journal for publishing the paper. Furthermore, he explained how Impact factor, h-index and i10 index plays the role in selecting the journal. The session was very helpful to the students and they gained lot of knowledge out of it.



SCREENSHOT OF SESSION ON RESEARCH PAPER WRITING

FACTS

- Two thousand years ago, a cook mixed three ingredients very common in any kitchen: potassium nitrate (food preservative), sulphur and charcoal. Mixed and heated, they go off exploding on a huge bang. This is how gunpowder came to be.
- The only pure elemental compounds that are liquid at room temperature are Br₂ (fuming orange liquid), and mercury.
- In an Acid-Base Reaction, also known as a titration, both an acid and a base combine to form water and other compounds..

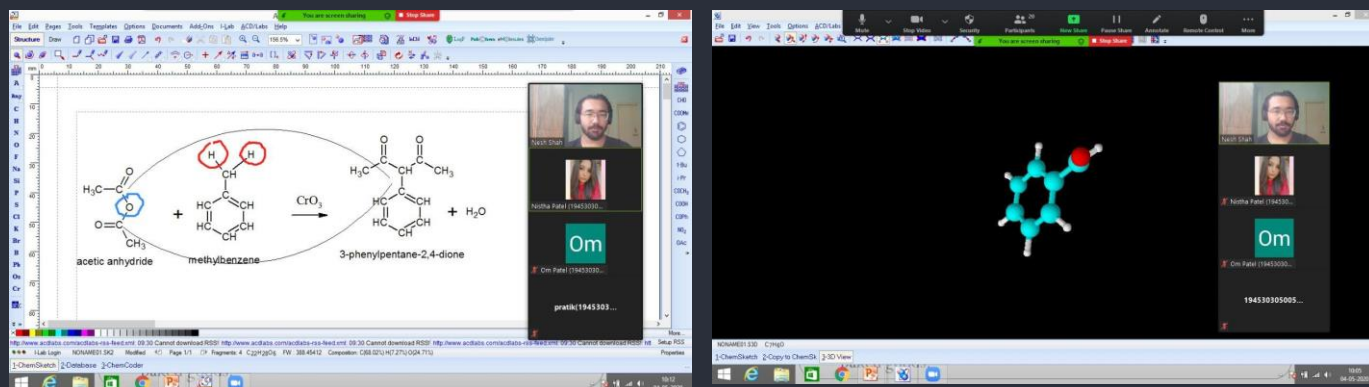
Chemical Engineers are not gentle people, they like high temperatures and high pressures.

-Steve LeBlanc

ONLINE TEACHING AT NEW LEVEL

(FACULTY AT THEIR BEST)

In such crucial pandemic times where everything has gone virtual, Chemical Engineering Department of Silver Oak University has always ensured to give their students the best experience and education virtually in as many ways as possible. The faculties came up with the idea of using Virtual Labs i.e. “V-Labs”. Through V-Labs they ensured to give practical knowledge along with theoretical education to the students. They made use of “Chemsketch”. It is a freeware through which students can get better understanding of chemical structures. Such efforts of the department took Online teaching at new level and proved to be beneficial and helpful to the students.



SCREENSHOTS OF TEACHING BY CHEMSKETCH

ORIENTATION SESSION

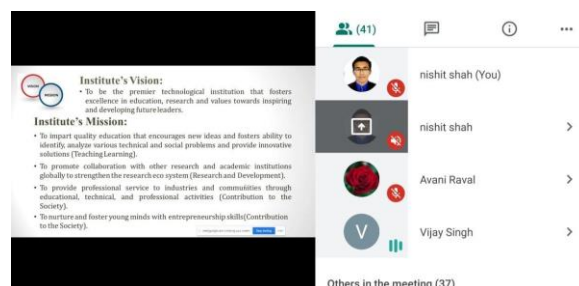
(FACULTY AT THEIR BEST)

Day & Date: Monday, 22nd June 2020

Session conducted under: Chemical Engineering Dept., SOU

Session brief:

Chemical Engineering Department of Silver Oak University conducted an Orientation session for the new academic semester on 22nd June 2020. Students of Degree Program (3rd, 5th, 7th Semester) and Diploma Program (3rd Semester) attended the session. The session was conducted by Mr. Vijay Singh, HOD of Chemical Engineering Department. He started the session by discussing on Vision, Mission, POs (Program Outcomes) and PEOs (Program Educational Objective) of the department. He further discussed the planning of the upcoming semester and explained the students about how the semester is going to be held through online lectures in this pandemic situation. Also, he informed the students about the scheduled Mid-semester examinations and Project Reviews.



SCREENSHOT OF ORIENTATION SESSION

FACTS

- **Absolute Zero (0 K or -273.15 °C) is a theoretical minimum, in which atoms would stop moving, and cannot be achieved. However, thanks to cryocooling refrigeration techniques, we can come close, in the range of a billionth of 1 K. Surprisingly cold, but never absolute zero**
- **The three dimensional arrangement of the diamond is so tight and difficult to disrupt that very high temperatures (in the order of 1000 °C) would be required.**
- **The Gold, Silver and Bronze Olympics Medal are worth \$550, \$300 and \$2 respectively. Yes, cost of Bronze medal is \$2 only.**

Research is to see what everybody else sees, and to think what nobody else has thought.

-Albert Szent-Gyergyi

SESSION ON SELECTION OF FINAL YEAR PROJECT

(FACULTY AT THEIR BEST)

Day & Date: Wednesday, 24th June 2020

Session conducted under: NEEM TREE CLUB



Selection of an appropriate topic for final year project plays a very significant role in engineering field as, the project is where students need to apply and integrate their knowledge and skills to solve real-life problems. In consideration to that, an awareness session on “Selection of Final Year Project” was organized under NEEM TREE CLUB of Chemical Engineering Department, Aditya Silver Oak Institute of Technology.

An hour - long session was held from 1.00 PM onwards on Google Meet and was conducted by Mr. Mohammad Imran, Assistant Professor and Project coordinator of Chemical Engineering Department. He started the session by briefing about Industry-defined and User-defined projects. Further, he discussed the strategies to resolve the difficulties faced by the students in selecting appropriate topic for the project.

Also, the students were introduced with Project Monitoring and Mentoring System (PMMS) and the activities to be carried out throughout the semester by the department. All the queries and doubts of the students were solved by him. The session was very informative and helpfulto the students.

(CREATIVITY OF STUDENTS)

INNOVATIVE ASSIGNMENTS IN LOCKDOWN

Even in the times of pandemic, Chemical Engineering Department of Silver Oak University has ensured to give their students the best of experience and education virtually. The students and faculties of Chemical Engineering Department have always come up with innovative ideas. During this quarantine period, they came up with “e – Assignments” under which students have prepared and submitted a video or presentation of different topics of various courses in their program. This activity was beneficial to the students in terms of gaining knowledge, confidence and in making productive use of their free time in lockdown.

Nothing in life is to be feared. It is only to be understood.

-Marie Curie

PREPARATION & DISTRIBUTION OF HAND SANITIZERS

Day & Date: Saturday, 21st March 2020

The Students of 5th Semester of Chemical Engineering Program, Silver Oak University - Jimesh Shah, Jaimin Jadi, Vanshika Tripathi, Vishal Gajjar, Jayen Patel, Moksha Shah, prepared Aloe Vera Gel-based Hand Sanitizers. It was prepared according to World Health Organization's recommendation. The students prepared their first sample on 20th March and later took necessary feedback from Chemical Engineering Program's faculties.

On receiving the approval from Dr. Pina Bhatt, Principal of Silver Oak University, the students circulated a Google form with the help of Mr. Vijay Singh, H.O.D. of Chemical Engineering Program, within the faculty members of Silver Oak University. After getting the total number of bottles till 4.30pm on 20th March, they closed the Google form. They started preparing the sanitizer from 9AM, Saturday and post completion of preparation and packaging in bottles, they distributed it among the faculties. They were able to distribute around 170 bottles of their Aloe Vera Gel-based Hand Sanitizers at a very convenient and low cost. The entire department appreciates their efforts towards betterment of society.

(CREATIVITY OF STUDENTS)

DOOR SANITIZING SYSTEM DEVELOPMENT

As we all know, the ongoing Corona Virus pandemic began in India on 30th January 2020, and the rest has been history. Due to lack of vaccine or any sort of medication yet to treat it, the only way to stop spreading the virus was maintaining a safe social distance and sanitizing oneself properly.

Jimesh Shah, a student of 4th Semester, Chemical Engineering Department, Silver Oak University, analyzed the situation and has contributed for the betterment of society in the prevailing situation of COVID-19. He has developed an automatic door sanitization system which can be used for the corporate offices, industrial units and other similar places where large gatherings are expected. This would lead to halting the further spread of the virus.

We would like to congratulate him for this great achievement on behalf of all the stakeholders of Silver Oak University.

The next best thing to knowing something is knowing where to find it.

-Samuel Johnson

TECH REPORT

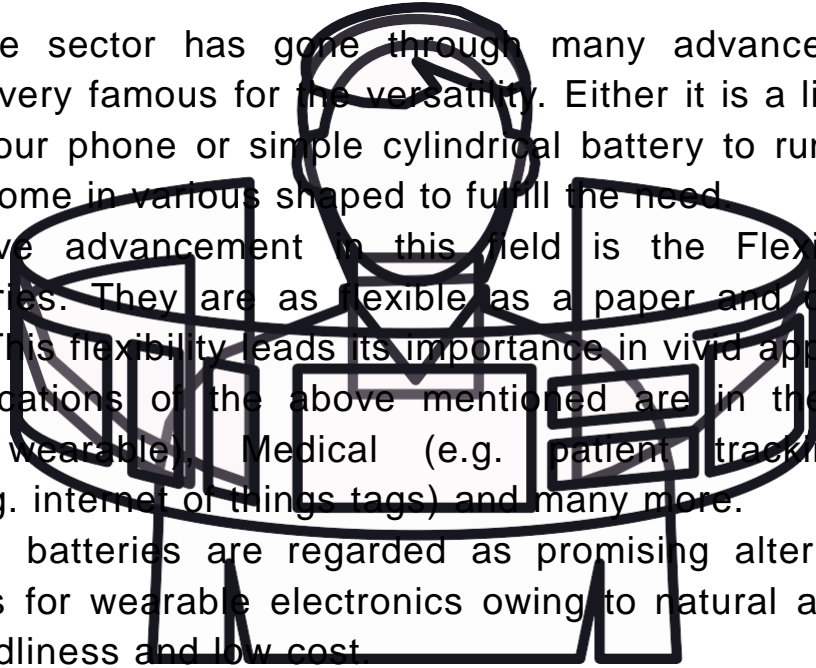
"FLEXIBLE ZINC BASED RECHARGEABLE BATTERIES "

The energy storage sector has gone through many advancements in the past decades. They are very famous for the versatility. Either it is a lithium ion battery to provide power to your phone or simple cylindrical battery to run the clock hanging on your wall, they come in various shaped to fulfill the need.

One very innovative advancement in this field is the Flexible zinc based rechargeable batteries. They are as flexible as a paper and can be rolled, bent, twisted, or folded. This flexibility leads its importance in vivid applications.

Some of the applications of the above mentioned are in the sector of Smart electronics (e.g. wearable), Medical (e.g. patient tracking and location), Communication (e.g. internet of things tags) and many more.

Flexible zinc-based batteries are regarded as promising alternatives to flexible lithium ion batteries for wearable electronics owing to natural advantages, such as environmental friendliness and low cost.



TECH REPORT

"CHEMOSENSORS "

- ♦ The foundations of chemosensors (devices that transform chemical information into analytically useful signals) were laid by Anthony W. Czarnek in the seminal publication: "Fluorescent Chemosensors for Ion and Molecule Recognition".
- ♦ There has been growing demand for wearable chemosensors for their important potential applications in mobile and electronic healthcare, patient self-assessment, human motion monitoring, and so on. Innovations in wearable chemosensors are revolutionizing the modern lifestyle, especially the involvement of both doctors and patients in the modern healthcare system.
- ♦ Principle application of wearable chemosensors is to acquire human body information to meet the demands of the world's ageing population and increasing medical expenses.
- ♦ According to the recent advances in wearable chemosensors, they are organized into three subsections to introduce applications focused on: Sweat based analysis, Saliva based analysis and Tearbased analysis.

Everything we call real is made of things that cannot be regarded as real.

-Neil

Bohr

TECH REPORT

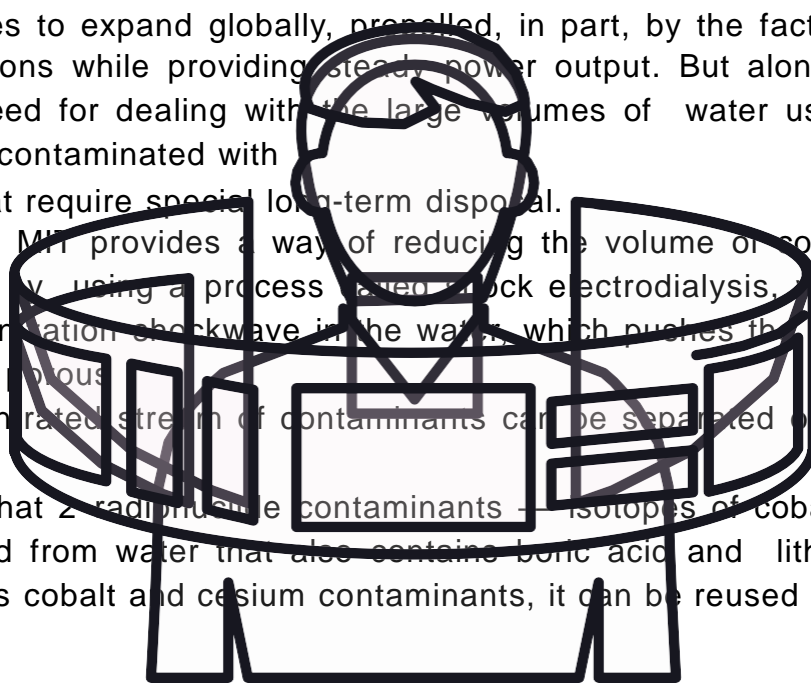
"A NEW WAY TO REMOVE CONTAMINANTS FROM NUCLEAR WASTEWATER"

Nuclear power continues to expand globally, propelled, in part, by the fact that it produces few greenhouse gas emissions while providing steady power output. But along with that expansion comes an increased need for dealing with the large volumes of water used for cooling these plants, which becomes contaminated with

radioactive isotopes that require special long-term disposal.

A method developed at MIT provides a way of reducing the volume of contaminated water that needs to be disposed, by using a process called stack electro dialysis, which uses an electric field to generate a deionization shockwave in the water, which pushes the ions to one side of a tube filled with charged porous material, so that concentrated stream of contaminants can be separated out from the rest of the water.

The group discovered that 2 radioactive contaminants — isotopes of cobalt and cesium — can be selectively removed from water that also contains boric acid and lithium. After the water stream is cleansed of its cobalt and cesium contaminants, it can be reused in the reactor.



TECH REPORT

"MAKING TISSUE STRETCHABLE, COMPRESSIBLE & NEARLY INDESTRUCTIBLE"

"When people donate their brain, it is like they are donating the library." quoted Kwanghun Chung, associate professor of chemical engineering at MIT, who, with aid of his team, developed a new process while working on a complex project in building the most comprehensive map to the date of human brain, ELAST.

•It has been a challenge in biomedical research labs to make imaging cells and molecules in the brains and other large tissues easier. Kwanghun Chung & his team of researchers has engineered a solution in which they have discovered a chemical process that makes tissue stretchable, compressible, and pretty much indestructible.

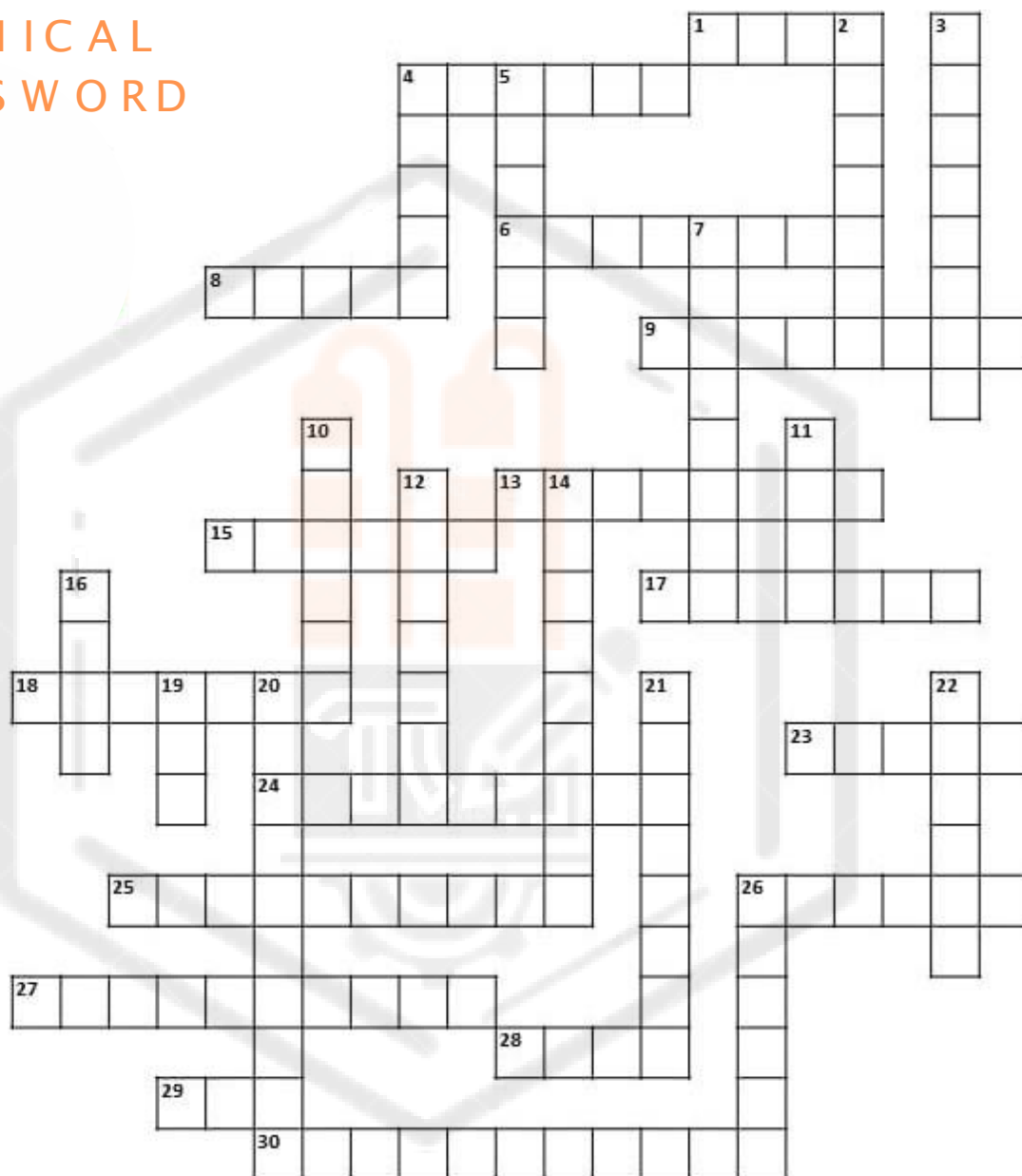
•Their efforts to engineer entangled link-augmented stretchable tissue-hydrogel (ELAST) came down to finding the right formulation of a gel-like chemical called polyacrylamide. In the formulation, the team used a high concentration of acrylamide with much less crosslinker and initiator. The result was an entanglement of long polymer chains with links that can slip around, giving the gel a structural integrity but with much more flexibility and ability to withstand stretching or squashing without anything becoming torn or permanently displaced in the process.

•This technique could enable researchers to conduct fluorescent labeling more quickly and easily in cells, proteins & other genetic materials within organs like the brain or lungs which could enable faster research discoveries.

Nothing is lost, nothing is created, everything is transformed.

*-Antoine
Lavoisier*

CHEMICAL CROSSWORD



ACROSS

1. Produces OH⁻ ions in solution
4. S
6. Combination of two or more atoms
8. Piece of glass used with a microscope
9. Negatively charged particle
13. Any liquid, solid or gas
15. Positively charged particle
17. Has no net electric charge
18. Eye protection
23. Negatively charged ion
24. K
25. Includes eyepiece, lens, and stage

26. Bunsen _____
27. Measures the relative densities of two liquids
28. Produces H⁺ ions in solution
29. An atom or molecule with a net electrical charge
30. Might be calibrated in Fahrenheit or Centigrade

DOWN

2. A substance that cannot be broken down by chemical means
3. Mixture of two or more substances
4. Used to weigh substances
5. Paper used to measure pH

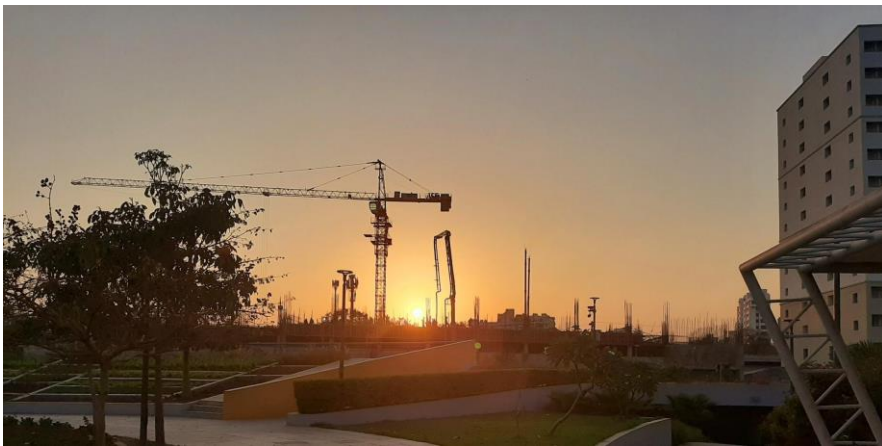
7. Cl
10. Hand protection
11. Ionic compound produced by reacting an acid with a base
12. Representation of a substance using symbols
14. OH⁻
16. Consists of a nucleus orbited by electrons
19. Matter with no defined volume or shape
20. A test in the laboratory
21. Two or more atoms joined together
22. Cu
26. Cylindrical glass container

*In the middle of difficulties, lies an opportunity.
-Albert Einstein*

Point Magnus CLUB

Point Magnus is a photography Club of chemical engineering department working under NEEM Club. A photography event was organized by this club and many students participated actively.

Here is some best photos received by club from participants.



Beauty Atara -7th Sem



Anuj Donga - 5th Sem



Deep Sinh Solanki - 7th Sem



Nimit Gandhi -7th Sem



Deval Asodariya - 3rd Sem



Meet Joshi -7th Sem

The triumph of engineering skills rest on a chemical foundation.

*-Horace
G. Deming*

TEAM NEUTRALIZE

HOD

Dr. Rajendra Mohite

Faculty members

Mr. Mohammad Imraan

Mr. Nishit Shah

Editing Team

Head Editors

Deep Sinh Solanki 7th sem

Meet Joshi 7th sem

Jimesh Shah 5th sem

Rajan Katariya 5th sem

Anuj Donga 5th sem

Writing Team

Nimit Gandhi (Head) 7th sem

Moksha Shah 5th sem

Bhagwati Dayal 5th sem

Shlok Rawal 7th sem

Avani Rawal Diploma

Research Team

Beauty Atara (Head) 7th sem

Ashfaq Pathan (Head) 7th sem

Vanshika Tripathi 5th sem

Bhoomik Rathod Diploma

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