

# **N** *Neutralize*



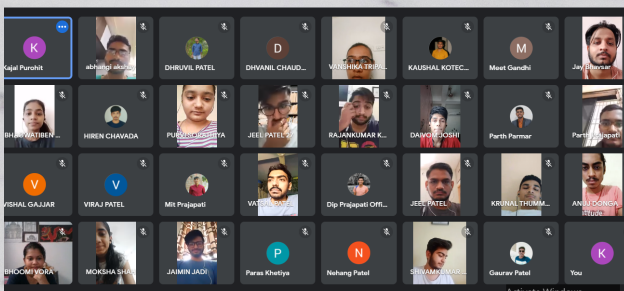
EDITION MARCH'21 - JUNE'21



## ***Chemical Engineering***

**Chemical engineering is a multi-disciplinary branch of engineering that combines natural and experimental sciences (such as chemistry and physics), along with life sciences (such as biology, microbiology and biochemistry) plus mathematics and economics to design, develop, produce, transform, transport, operate and manage the industrial processes that turn raw materials into valuable products.**

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## ***HOD's Message***

I am extremely delighted as Chemical Engineering Department is publishing 14th issue of "NEUTRALIZE" with the endless support of the management, higher authorities, faculty members and admirable contribution of students. Newsletter is considered to be a focus of the recent advances of the department in terms of academics, achievements of students and faculty members as well as extraordinary contributions by all the stakeholders. It is the best time for all of us to work as a team for achieving the predefined visions.



**Dr Rajendra Mohite  
Head of Chemical  
Engineering  
Department**

We all are aware that past couple of months have really been very tough for the people across the globe. We were severely affected by the second wave of the pandemic which has been proven to be more dangerous and fatal than the previous one. Even during these tough times, we were able to organize various curricular, co-curricular and extracurricular activities through online mode in order to provide the motivation and courage to all the students. The glimpses of these events have been included in the current edition.

**The department had successfully conducted the online review of “Final Year Project” and “Problem Based Learning” (PBL) teams. The students appeared for the descriptive “Continuous Evaluation Test” (CET) which boosted their confidence and helped them to clear their concepts. We had also celebrated “World Environment Day” in the most unique manner.**

**The final year students have pursued “Summer Internship” at various process industries and incorporated the theoretical knowledge to solve the practical problems. The department organized two online events “Quarantine Cravings” and “Game of Colours” which will definitely add third dimension to the students’ personality. Our final year student, Daivom Joshi, has prepared a prototype for the continuous supply of oxygen to the COVID patients. Two of our students, Dhruv Patel and Mitesh Patel, qualified “GATE 2021” with flying colours securing All India Rank (AIR) 624 and 2295 respectively.**

**At the end, I take this opportunity to acknowledge our student committee for their praiseworthy efforts for the successful publication of the current edition. Furthermore, I would like to express my sincere gratitude to Mr. Mayank Makwana for coordinating with the students committee and working as a faculty editor. Furthermore, I invite the readers of this newsletter for their contribution and valuable suggestions for the upcoming issues.**

# Team's Message

Being a part of neutralize team has always been an opportunity which we cherish and feel proud about having such a pleasure of working as team and creating an impact using our departmental newsletter. We all are indulged and divided into teams working on different sub-departments in the formation of the Neutralize newsletter. We all feel privilege to work under the guidance and constant support of all of our faculties. We learnt a lot of things being a part of Neutralize; we learnt to be an organized person along with being an organized team. We aim to create value and make a difference everywhere we engage. It has benefited us not only by adding skills for our walk of life but has also helped us acquire morals. It has boosted our communication skills, leadership skills, writing skills, research skills, designing, formatting and drafting skills tremendously. The list will go on and so our enthusiasm and zeal to work for NEUTRALIZE.

# A General Talk with 4th Semester Students

The Chemical Engineering Department of Aditya Silver Oak Institute of Technology arranged a monthly meeting for 4th semester students on 16th March, 2021 at 3:30 PM. This session was an interactive session between the students and the faculties.

The session started with the discussion on 3rd semester final examination by Mr. Mohammad Imran, HOD of Chemical Engineering Department. Further, he gave information on various type of clubs currently active on the departmental level for the students. He also encouraged the students to actively participate in various type of activities organized by the clubs. Then he discussed various MOOC courses available on web and motivated them to take those courses. He also talked about the multidisciplinary courses which will help the students to improve their knowledge and skills. He further discussed about the "Design Engineering" (DE) project. Mr. Mohammad Imran and all the faculties advised the students to undertake DE project by forming the group themselves for better coordination among the team members. The session was concluded with the vote of thanks.

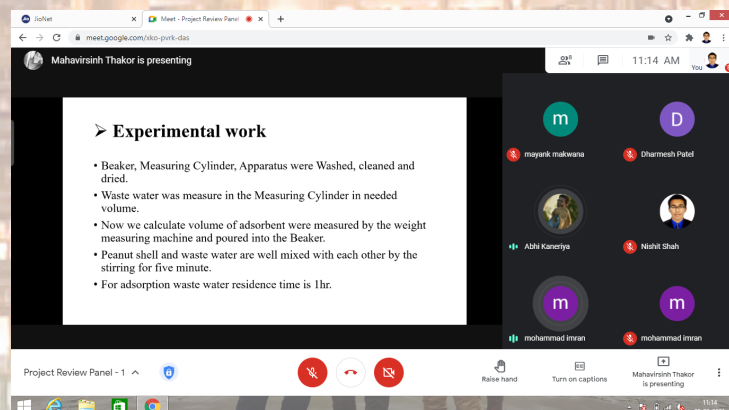
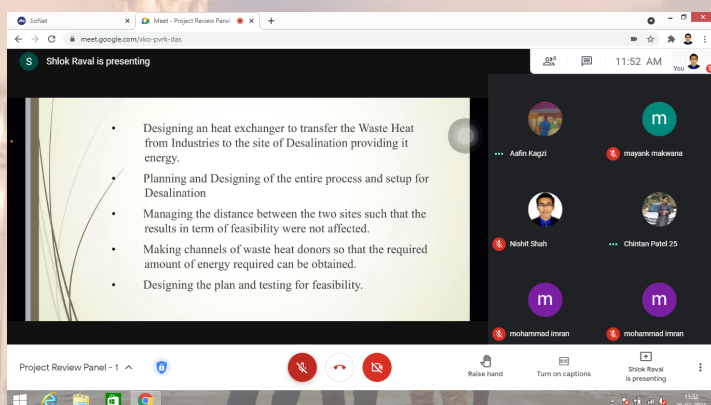
"What's nice about having an engineering degree is everybody thinks you are smart."

~Ato Essandoh

# Internal Online Project Review

Project review is a systematic review of project work. It is crucial as it brings detailed review aspects to the limelight. Chemical Engineering Department of Aditya Silver Oak Institute of Technology conducted an "Internal Online Project Review" on 20th March 2021 through Google Meet platform. There were two faculty panels. Panel 1 consisted of Mr. Mohammad Imran and Mr. Mayank Makwana whereas Panel 2 comprised of Mr. Pritam Khandale, Ms. Kajal Purohit and Mr. Nishit Shah.

It was a great session as it helped to evaluate the quality of the accomplished projects as well as the impact of work done. It was an interactive session where the faculties gave attention to the details for every single group. The faculty members reviewed the projects pitched by the students and suggested the required guidance and corrections in the projects.



**"One fall day in Boston, a tall mechanical engineering student named Joe entered the student union at Harvard University. He was all ambition and acne."**

**~Dan Ariely**

When the faculties gave their word of appreciation for the work done, the students felt charged up and noticed. Even when the faculty pointed out an error in the project, it came out as a great learning and a change in direction. With the cooperation of the students and teachers, the online project review bought betterment to the table. It also taught students effective communication skills, teamwork and initiative skills. Thus, the review is an integral step in the process of a project.

The screenshot shows a Google Meet window with a presentation slide titled "Literature". The slide contains a table with the following data:

Year	Author	Work Done	Result
2012	Thony Soutan/Manav-Brank, Hugo Bodo-Ancie	CONSTRUCTION MATERIAL BASED ON ACTIVATED FYV ASH	The present invention concerns concrete formulation based on or on shell activated binder with no cement or similar addition that provides strength development and workability similar to ordinary Portland cement based concrete.
2012	William B Spence, Chua B Seng	FYV ASH USED IN CONSTRUCTION APPLICATION	A masonry product is formed from composition comprising a blend of fly ash and lime that is process for forming the product comprises mixing fly ash, fly ash, and water and applying a pressure.

The meeting interface shows several participants in a call, including Fenil Gajjar, Shubh Patel, mayank makwana, Nutan Patel, shubh patel, and Yash Patel.

The screenshot shows a Google Meet window with a presentation slide titled "Experimental work". The slide lists the following steps:

- Beaker, Measuring Cylinder, Apparatus were Washed, cleaned and dried.
- Waste water was measure in the Measuring Cylinder in needed volume.
- Now we calculate volume of adsorbent were measured by the weight measuring machine and poured into the Beaker.
- Peanut shell and waste water are well mixed with each other by the stirring for five minute.
- For adsorption waste water residence time is 1hr.

The meeting interface shows participants including mayank makwana, Dharresh Patel, Abhi Kananiya, Nishit Shah, mohammad imran, and mohammad imran.

The screenshot shows a Google Meet window with a presentation slide containing a flowchart for "Preparation of Soaps". The flowchart starts with "Preparation of Soaps for all the blends" and branches into "Filtering and Storage" and "Blending of different varieties of oils in different ratios". The "Blending" step leads to "Analysis of the oil blend", which includes "Submicroscopic Parameter", "Refractive Index", "Optical Density", and "Ash Value". The "Filtering and Storage" step leads to "Analysis of all the varieties of soaps", which includes "Lathering", "Cleansing", "Yield", "Emulsions", and "pH".

The meeting interface shows participants including mohammad imran, mayank makwana, Nishit Shah, and mohammad imran.

The screenshot shows a Google Meet window with a presentation slide titled "Introduction:-". The slide lists the following points:

- Coal dust has historically been collected as a waste product from homes and industry[1]
- During the nineteenth century coal ash was taken by 'housewives' and delivered to local brick yards, where the ash would be mixed with clay[1]
- Clay is typically entrapped during the formation of coal[2]
- When coal is burnt, the incombustible clay particles are left behind as ash[2]
- Its pore bodies, incombustible ash agglomerates as clinkers through prolonged residential time[2]

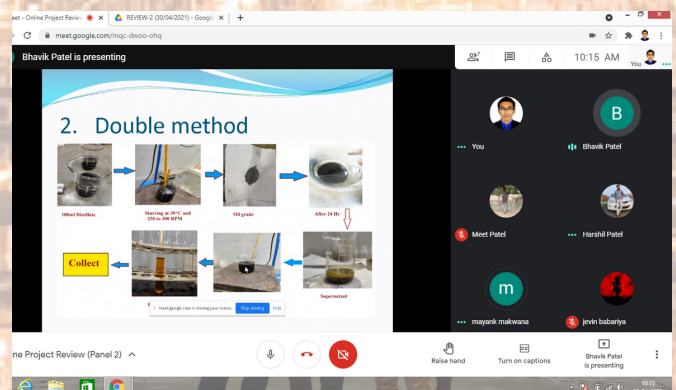
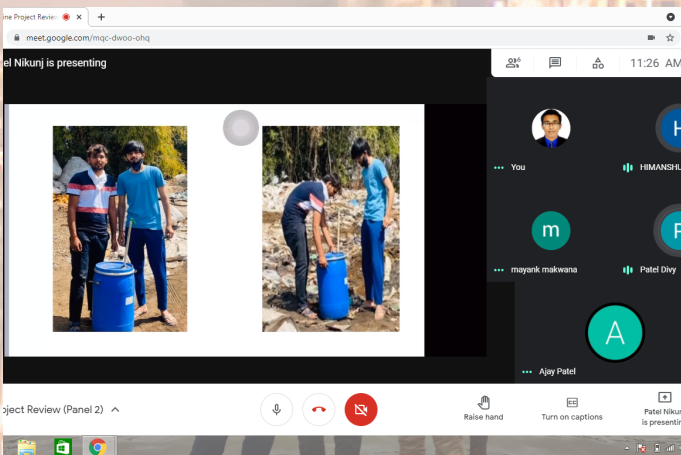
The meeting interface shows participants including Fenil Gajjar, Nishit Shah, Shubh Patel, mayank makwana, Nutan Patel, shubh patel, and shubh patel.

"People who are crazy enough to think they can change the world, are the ones who do."  
~Rob Siltanen

# Final Online Project Review

An Online project review was conducted for the final year students by Chemical Engineering Department of Aditya Silver Oak Institute of Technology on 30th April, 2021 via Google Meet platform. The review was conducted in two panels. Panel 1 was taken by Mr. Mohammad Imran, HOD of the department and Asst. Prof. Ms. Kajal Purohit. Panel 2 was conducted by Asst. Prof. Mr. Mayank Makwana and Asst. Prof. Mr. Nishit Shah. Proper remarks and guidance were given to the students by the faculties.

The projects are important part of the curriculum; they increase the thinking capability and application of the education and knowledge students gained. Hence, proper guidance related to projects and the appreciation for work done by the students are equally important. The students excellently presented their projects and their innovation into it with respect to future aspects.



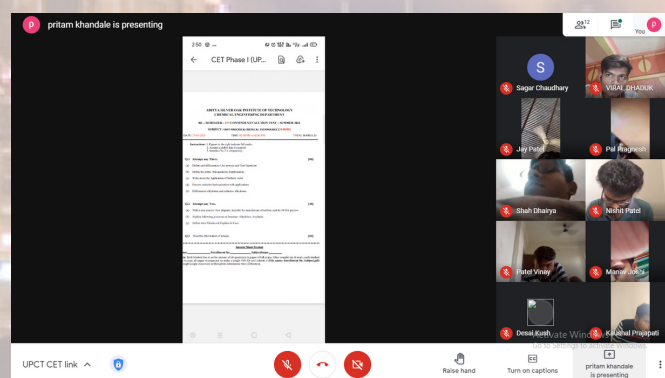
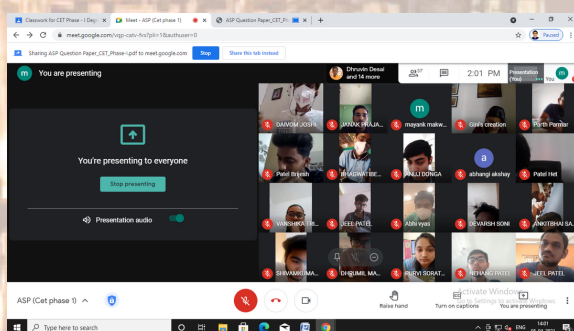
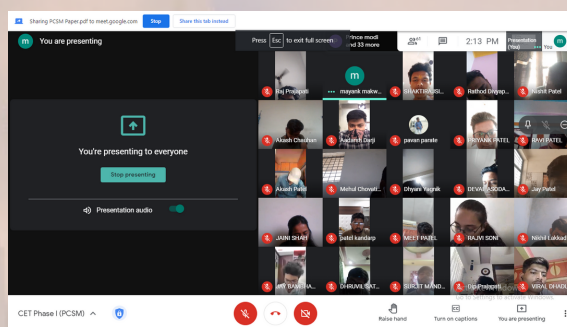
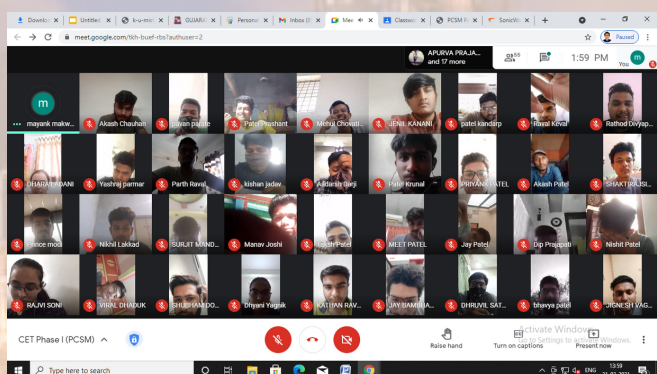
**"For decades engineers have stood accused that their buildings do not have any cultural value. We have attempted to liberate engineering of this accusation."**

**~Fritz Todt**

# Continuous Evaluation Test

Continuous Evaluation is important to know and test the knowledge of the students they studied so far. Chemical Engineering Department of Aditya Silver Oak Institute of Technology arranged rounds of "Continuous Evaluation Test (CET)" of every subject for the 4th, 6th Semester Degree students and 4th Semester Diploma students. CET was conducted through online platforms, Google Meet and Google Classroom. CET was conducted in two phases, "Phase One" from 22nd March 2021 to 26th March 2021 whereas "Phase Two" was from 19th April 2021 to 23rd April 2021.

The exam paper style was descriptive and the average marks obtained by the students in both the phases were considered in final internal evaluation. This practice of CET turned out to be very beneficial for the students as they got to learn more and tested their knowledge as well.



**"I look most like myself... when I'm wearing my black, nerdy engineering glasses."**

~Junot Diaz

# A Session on "Introduction to Design Engineering"

Design Engineering (DE) plays a very important role in engineering as it enhances the thinking capability, problem solving techniques and applying knowledge practically in the students.

To introduce students the concept of Design Engineering, Chemical Engineering Department of Aditya Silver Oak Institute of Technology arranged a session on the same for 4th Semester students on 26th March, 2021. The session was addressed by Mr. Mohammad Imran, HOD of the department. He started the session with basic introduction and made the students aware with the importance of Design Engineering. He further explained the difference between DE-I and DE-II. DE-I consists of basic thinking methodology whereas DE-II holds branch specific projects like Modification, Redesign, User-friendly projects etc. He explained about all the canvases the students need to complete and upload on the DE portal. He further gave the information about what should be the thinking process and approach in order to gain appropriate information for report writing methodologies and techniques. The whole session was very informative and useful for the students in their whole engineering term.

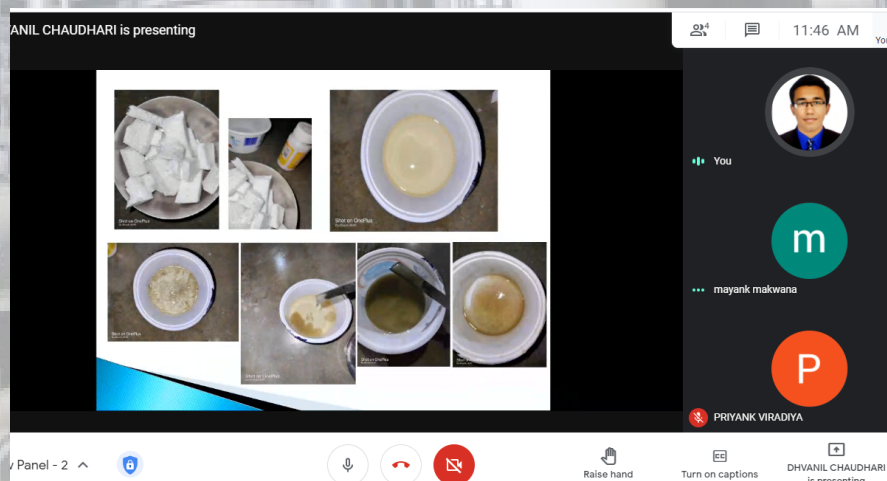
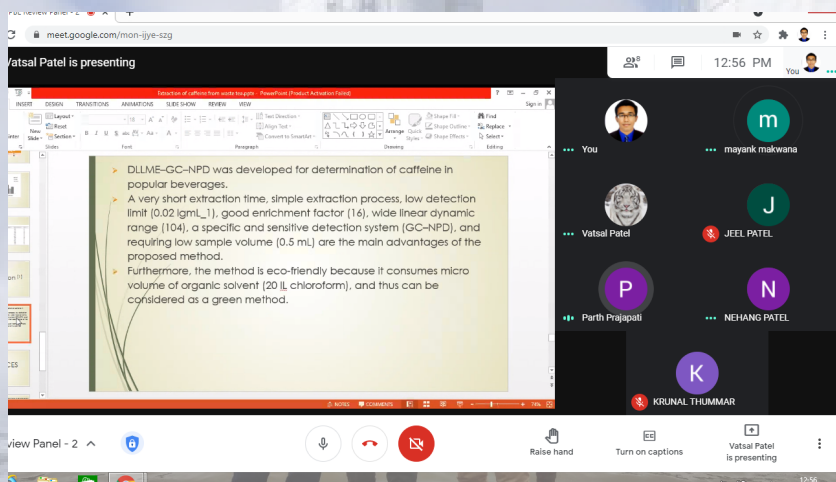
**"Petroleum is a more likely cause of international conflict than wheat."**

**~Simone Weil**

# Final PBL Review of 6th and 4th Semester Students

The Chemical Engineering Department of Aditya Silver Oak Institute of Technology organized review of PBL (Problem Based Learning) projects for the students of 6th and 4th semester on 20th April, 2021 and 24th April, 2021 respectively via Google Meet platform.

Problem Based Learning is an important part of our academic curriculum because it is a student-centered approach in which students work in groups to solve an open-ended problem. So, the review and appreciation of the work done by the students is equally important.



**"I'll tell you what I hate - bands like My Chemical Romance."  
~Jamie Bell**

The review was divided into two panels. Each group was given duration of 20 minutes to represent their projects. The students presented the projects actively about the researches related to problems and what innovation they did to solve it.

gmeet.google.com/gvww-hpai-nha

ubisa is presenting

JAY BAMBHANI... and 2 more

10:02 AM

APURVA PRAJAPATI

mohammed imran

Bhargav choubisa

Preparation and Comparative Evaluation of Activated Carbon

Project under - Problem Based Learning

et - PBL Review Panel - II

meet.google.com/uax-qxkm-guq

JAINI SHAH is presenting

Waste Management Hierarchy as a Key Element of Integrated Solid Waste Management

Figure 3-1: The Solid Waste Management Hierarchy

Source Reduction  
Reuse  
Recycling  
Resource Recovery  
Incineration  
Landfilling

Waste Disposal

Most Preferred  
Least Preferred

You

JAINI SHAH

RAJVI SONI

mayank makwana

Dhyan Yagnik

Meet - PBL Review Panel - II

meet.google.com/uax-qxkm-guq

Mevada Umang is presenting

RECYCLE AND REUSE OF LDPE PLASTIC CYCLE

BIOLOGICAL REUSE

TREATMENT

USE FOR ENERGY

SECONDARY RAW MATERIALS

MATERIAL REUSE

PRODUCTION

CONSUMPTION

COLLECTION AND TRANSPORTATION

after-sorting, cleaning and pre-treatment

eco-design, sustainable consumption and production

You

mayank makwana

Mevada Umang

bhavya patel

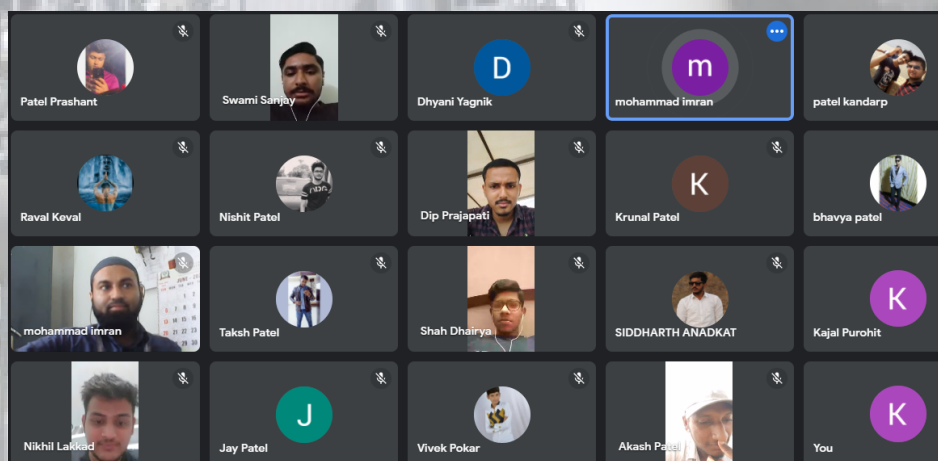
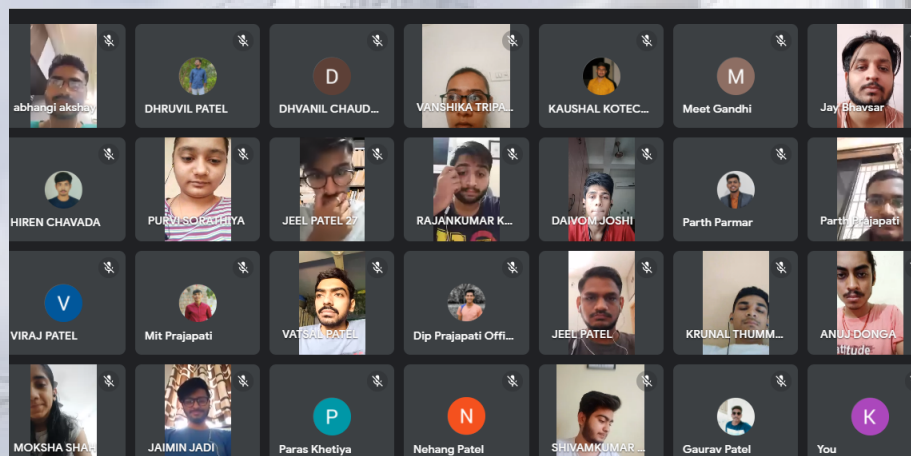
**"The meeting of two personalities is like the contact of two chemical substances: if there is any reaction, both are transformed."**

~Carl Jung

# Monthly Meeting for All Semester Students

The Chemical Engineering department of Aditya Silver Oak Institute of Technology conducted a monthly meeting for all semesters students of the department on 24th May, 2021 through Google Meet.

The session was conducted by Mr. Mohammad Imran, HOD of Chemical Engineering Department. He discussed about how the whole semester went and asked about the difficulties faced by the students. He further discussed about the upcoming semester and examinations. The meeting ended with vote of thanks and well wishes.



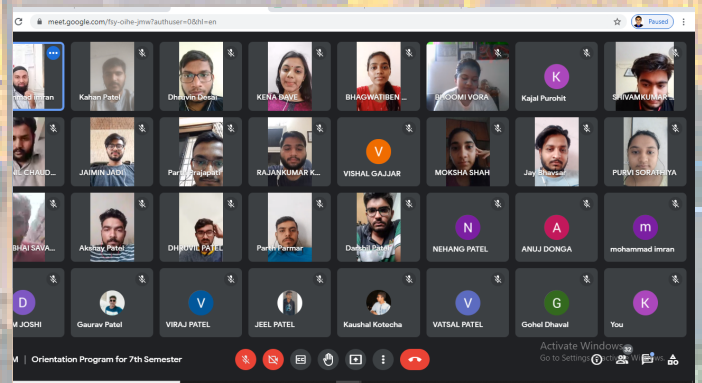
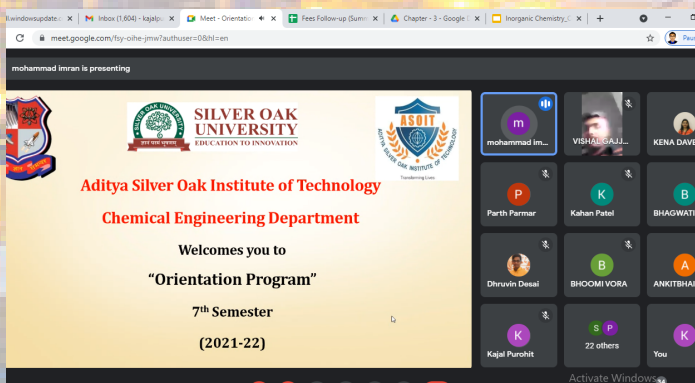
**"When I decided to get sober, there were a lot of chemical imbalances that came along with that, physically as well as mentally."**

**~Ivan Moody**

# Orientation Program

Chemical Engineering Department of Aditya Silver Oak Institute of Technology organized "Orientation Program" for 5th and 7th Semester Degree and 5th Semester Diploma students.

It was held on 7th June, 2021 for 5th Semester Degree and Diploma students and on 21st June, 2021 for 7th Semester Degree students through Google Meet platform. The session was conducted by Mr. Mohammad Imran, HOD of Chemical Engineering Department. He started the session with a discussion on Vision & Mission of the institute and department, Program Education Objectives (PEOs) & Program Outcomes (POs) of Chemical Engineering program. He also introduced the students with the concept of Outcome Based Education (OBE) and explained the term Course Outcome (CO) in that context. He further discussed about the subjects students will be studying in the current semester in brief. The session ended on well-being note.



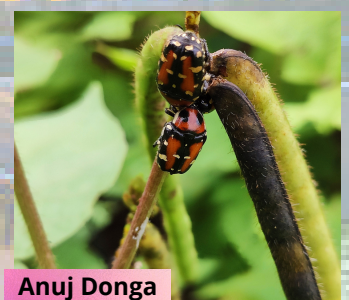
**"Water is at the center of every chemical reaction, and therefore should be the earth's most precious gift."**

**~Janine Benyus**

# World Environment Day Celebration

"World Environment Day" was celebrated under NEEM Tree Club, Chemical Engineering Department, Aditya Silver Oak Institute of Technology by organizing a photography / videography event for the students of Chemical Engineering Department.

The students from 5th semester Diploma, 5th and 7th semester Degree participated actively in the event. More than 40+ students participated enthusiastically. The number of responses of photographs and videos were 100+. The event was conducted under the guidance of Mr. Mohammad Imran (HOD of Chemical department), Ms. Kajal Purohit (Assistant Professor) and Mr. Mayank Makwana (Assistant Professor). The event was very successful and students enjoyed the event and they were happy to share their photography and videography talent in front of the whole department.



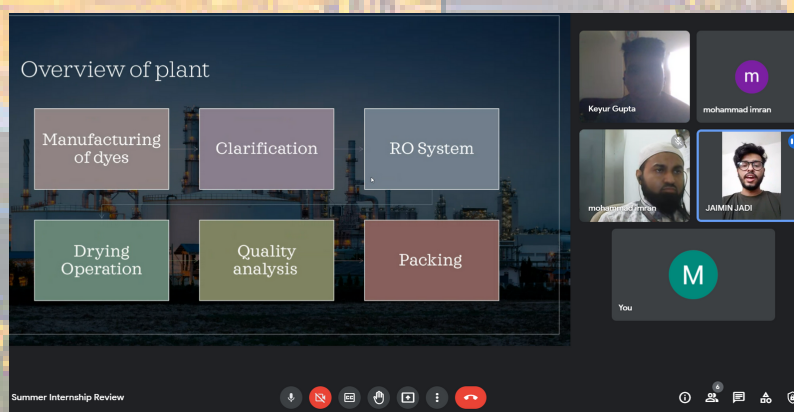
"It is impossible to identify a nice scent from within the chemical cloud of a perfume department."

~Victoria Coren Mitchell

# Review of Summer Internship

The online review of "Summer Internship" was conducted by the Chemical Engineering Department of Aditya Silver Oak Institute of Technology on 28th June, 2021, Monday from 10:00 am through Google Meet. The review was conducted by Mr. Mohammad Imran, HOD of Chemical department, Mr. Mayank Makwana (Assistant Professor) and Ms. Kajal Purohit (Assistant Professor).

The basic aim of conducting the review session of internship was to make students understand the concepts they learnt in industrial internship more precisely and can learn the ability to express themselves.



**"All that glitters may not be gold, but at least it contains free electrons."**

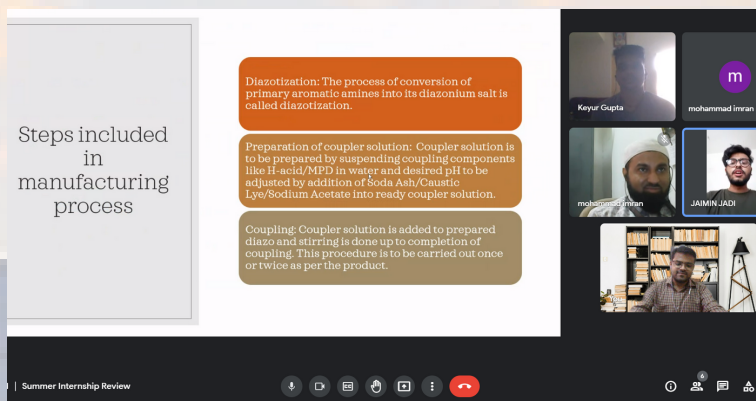
**~John Desmond Bernal**

Steps included in manufacturing process

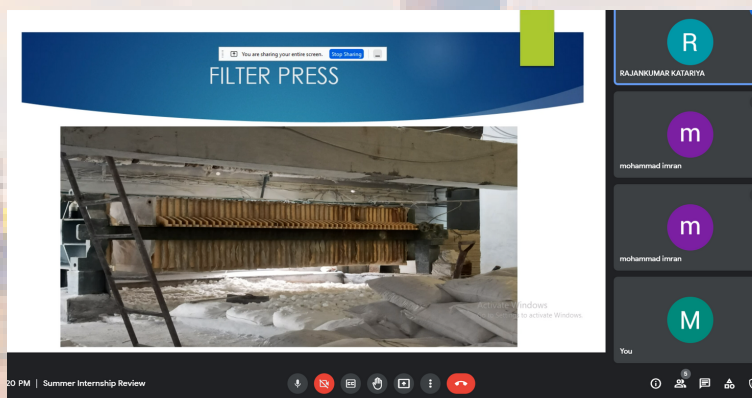
**Diazotization:** The process of conversion of primary aromatic amines into its diazonium salt is called diazotization.

**Preparation of coupler solution:** Coupler solution is to be prepared by suspending coupling components like H-acid/MPD in water and desired pH to be adjusted by addition of Soda Ash/Caustic Lye/Sodium Acetate into ready coupler solution.

**Coupling:** Coupler solution is added to prepared diazo and stirring is done up to completion of coupling. This procedure is to be carried out once or twice as per the product.



Zoom meeting screenshot showing a presentation slide titled "FILTER PRESS". The slide displays a photograph of a large industrial filter press machine in a factory setting. The Zoom interface includes a top bar with the title "FILTER PRESS" and a "You are sharing your entire screen" notification. The right sidebar shows a list of participants with their initials and names: RAJANUMAR KATARIYA, mohammad imran, mohammad imran, and You. The bottom status bar shows the time as 20 PM and the meeting title "Summer Internship Review".



The review program started at 10:00 am and total 51 students presented themselves in the internship review program. The review was conducted smoothly and students prepared the presentations which included the photographs and videos and different mechanisms of the chemical plants and industries they pursued internship in.

The overall review program was very informative, helpful and students learnt different skills after the completion of their internships which includes business etiquette, communications skills, time management, critical thinking, interpersonal skills, technical proficiency etc.

# Quarantine Cravings

## (An Online Cooking Competition)

As we all are aware that this pandemic and prolonged lockdown has enabled us to learn new skills. Many students while interacting with the faculty members revealed that they learnt cooking during this period. NEEM Tree Club of Chemical Engineering Department, Silver Oak University organized an online cooking competition “Quarantine cravings” on 28th May 2021 i.e. Friday for the 6th and 4th semester degree and 4th semester diploma students of the department in order to provide them a platform to explore their talent. There were total 29 participants in the whole event. All the participants actively took part in the competition by recording the video of the preparation and presentation of their delicious dishes. They also shared a picture of the prepared dish as per the rules of the event.



**"One thing that you cant fake is chemistry."**

**~Blake Shelton**



The videos were evaluated on the basis of various parameters such as chopping of the vegetables (if any), nutritional values of the prepared dish, time duration of the preparation, number of readymade ingredients used while making the dish and garnishing. The videos were evaluated by Mrs. Niharika Mehta and Mr. Nishit Shah, ex faculty members of the department on the basis of the aforementioned criteria. The result was announced on 31st May 2021 i.e. Monday in the valedictory function. Mr. Surjit Mandal, 4th semester degree student was declared as winner of the event by the judges. Mr. Mohammad Imran, Head of Department, motivated and inspired all the participants and coordinators throughout the event. Ms. Kajal Purohit and Mr. Mayank Makwana, faculty members of the department coordinated with the NEEM Tree Club coordinators and the participants for the smooth conduction of the event. The participants and all the students enjoyed the event and expressed their willingness to participate in more such events in the near future.

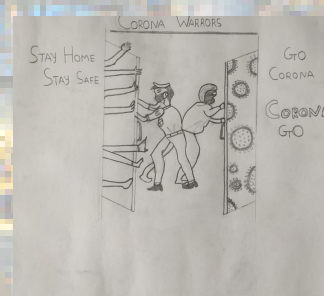
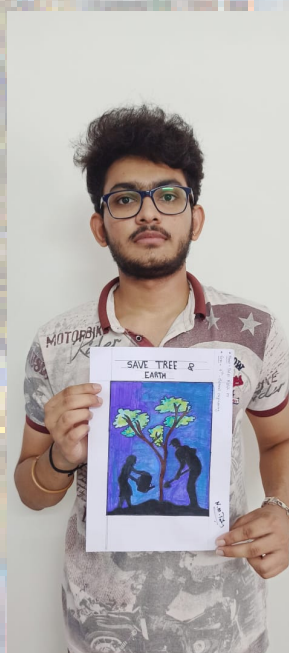
**"There is no need to argue if an experiment can be made."**

**~Henri Etienne Sainte-Claire Deville**

# Game of Colours

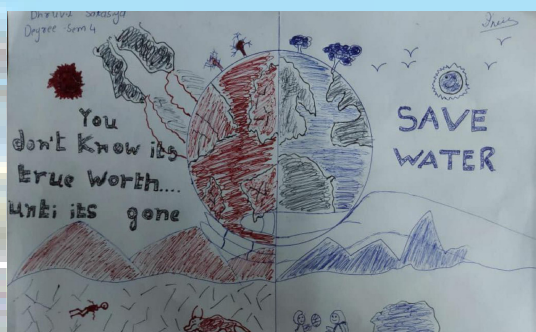
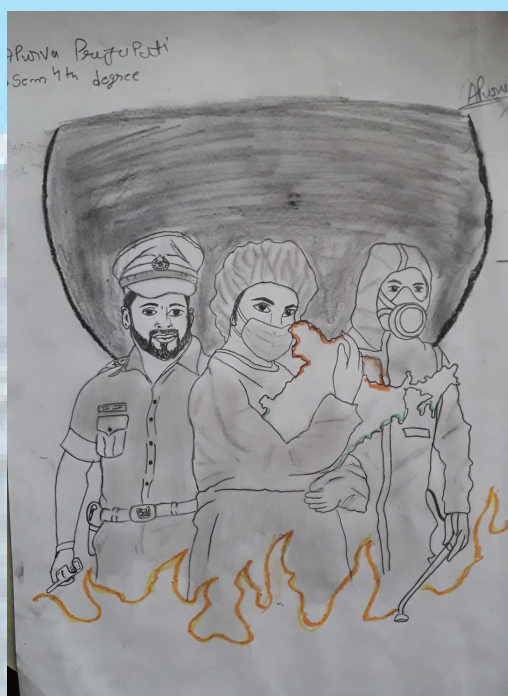
## (An Online Drawing Competition)

NEEM Tree Club of Chemical Engineering Department, Silver Oak University organized an online drawing competition “Game of Colours” on 29th May 2021 i.e. Saturday for the 6th and 4th semester degree and 4th semester diploma students of the department through Cisco Webex platform. We all know that during COVID-19 pandemic, the doctors, nurses and ward boys have played a crucial role by taking care of our health. In order to acknowledge their services, one of the themes was decided as “Felicitation of COVID Warriors”. The second theme was “Conservation of Nature” to depict the significance of natural resources and the threat caused due to anthropogenic activities. The duration of the event was 90 minutes. In total 34 students participated in this live event. The participants sketched their drawings in the live event in front of the camera. This was an open-handed event as the students could use any method of drawing or painting.



**"Chemistry is not anything an executive producer or writer can orchestrate or plan; you just hope for it."**

~David E. Kelley



The final drawings were evaluated on the basis of creativity in regards of the theme, execution and uniqueness, visualisation (colour scheme) and quality of artistic composition (finishing of overall design). The judges of the event were Dr. Zinnira Ansari and Ms. Kosha Vaishnav. The sketches were judged considering the above criteria and two winners were decided. The result was announced on 31st May 2021 i.e. Monday in the valedictory function. Mr. Shaktirajsinh Vaghela and Deval Asodariya, both from degree 4th semester, were declared as first and second winner respectively. The valedictory function was attended by Mr. Vijay Singh and Mr. Pritam Khandale, ex faculty members of the department. They both congratulated the winners and motivated all the participants. Furthermore, they encouraged all the students of the department to take an active participation in such events for the overall development. The function was concluded with a vote of thanks. The event turned out to be a lot of fun to the students as well as the faculty members.

**"Chemistry is not anything an executive producer or writer can orchestrate or plan; you just hope for it."**

**~David E. Kelley**

# A Student's contribution towards Oxygen Production during the Pandemic....

As we all are aware about the shortage of oxygen cylinders and the subsequent consequences during this pandemic, we all need to contribute towards the solution by incorporating our capabilities. Daivom Joshi, 6th semester student of Chemical Engineering Department, Aditya Silver Oak Institute of Technology (ASOIT) has set such an example which will definitely turn out to be a source of motivation for other students.

He has prepared a prototype for the oxygen production in the most economical and easy-to-operate manner. We hope that this innovative invention will surely help to resolve the oxygen crisis and save many lives. We congratulate him for this great achievement and wish him all the best for his future endeavours.



When you work with somebody you have chemistry with, it's easy and it's fun. You hardly call it work.

~Joe Lando

# Two Students of the Department opened the "GATE" for Higher Education

Graduate Aptitude Test in Engineering (GATE) is a national level examination administered & conducted jointly by the Indian Institute of Science (IISc) & 7 Indian Institutes of Technologies (IITs) on behalf of the National Coordination Board - GATE, Department of Higher Education, Ministry of Human Resources Development (MHRD), Government of India. Almost 20,000 Chemical Engineers appear in GATE exam every year.

Chemical Engineering Department of Aditya Silver Oak Institute of Technology feels immense proud to announce that their final year students from 2016 Batch, Mr. Dhruv Patel & Mr. Mitesh Patel have secured All India Rank (AIR) 624 & 2295 respectively in GATE 2021 organized by Indian Institute of Technology (IIT) Bombay. We congratulate both on their great success and wish them all the best for their future endeavors.



**Mr. Dhruv Patel**  
All India Rank (AIR) 624



**Mr. Mitesh Patel**  
All India Rank (AIR) 2295

**The man who has confidence in himself gains the confidence of others.**  
~Hasidic Proverb

# MEET OUR TOPPERS

20

## Semester 7



**Alpesh Chakarani (SPI 8.79)**



**Beauty Atara (SPI 9.17)**



**Yash Patel (SPI 8.69)**

## Semester 5



**Mit Prajapati (SPI 9.35)**



**Krunal Thummar (SPI 9.43)**



**Bhoomi Vora (SPI 9.22)**

## Semester 3



**Bhargav Choubisa (SPI 8.48)**



**Nishit Patel (SPI 9.17)**



**Umang Mevada (SPI 8.22)**

## Diploma Semester 3



**Nistha Patel  
(SPI 8.75)**



**Tirth Patel  
(SPI 8.75)**



**Bhumik Rathod (SPI 9.13)**



**Avani Raval (SPI 8.34)**

# TECH REPORT

- **Hydrogen generation for modern refineries**

With increasing demand for diesel, more stringent product specifications for cleaner fuels, reduced fuel oil demand and the economic advantages in processing heavier sourer crudes, the demand for hydrogen in refineries continues to grow. With this increasing demand of hydrogen the refiners need to make hydrogen as their asset and not as their liability. Refineries are generally of 3 types: 1) Hydrogen Long, 2) Hydrogen Short and 3) Hydrogen available on demand. Chemical engineers talk about mass balances. The principle is the same: what goes in must be accounted for. When we are dealing with hydrogen systems, the total amount of hydrogen produced and/or supplied must equal the total hydrogen that is chemically consumed, exported, burned as fuel or flared. Unfortunately, it is very rare to find a refinery where all hydrogen is accounted for. As for solution we can keep hydrogen out of fuel gas is beneficial for many reasons. Recovering hydrogen decreases the required amount of on-purpose hydrogen. Because hydrogen increases flame temperatures in fired heaters, it can limit heaters with tube temperature constraints. Hydrogen network optimization identifies possible investment options and changes to operation, which recover and purify hydrogen before it reaches the fuel gas system. This activity is more complex than other utility optimization techniques, because in addition to considering flow and pressure, one must consider purity and the impact of composition.

# TECH REPORT

- **AI in refinery modeling**

Artificial intelligence (AI) and machine learning are rapidly emerging as tools that can greatly accelerate the ability to employ plant data both to calibrate first principles models and to create data based models of phenomena and processes quickly. With net zero carbon initiatives, the imperative to adopt circular economy principles, the rapid pace of energy transition, and ongoing economic turbulence, process companies are driving rapid innovation in refining and chemical plant processes. Hybrid models address this need. They combine AI, first principles, and domain expertise to deliver a comprehensive, accurate model of new and complex processes quickly. The hybrid model approach harnesses AI, combining it with domain expertise to create the guard rails that make it work safely, reliably, and intuitively. AI and machine learning allow us to build a model analyzing a broader set of data while leveraging advanced data science techniques for model prediction. When combined with engineering principles and domain expertise, models can be built and maintained more quickly than traditional methods without requiring significant user expertise. With the help of these hybrid models we could solve problems related to sustainability, energy transition, market volatility, etc. The pressure to move towards a circular economy also creates many innovation challenges. Hybrid models provide the ability to optimize and evaluate chances across a wide asset scope, to select the best strategies to meet these goals. The upcoming era is going to be the era of hybrid models which equips us with more efficient models and refining processes.

# WORDS OF WISDOM

I was very curious about science since my childhood and was fascinated about finding out how machines around me worked. My parents suggest me to do engineering after completion high school. I followed their guidance and choose Chemical Engineering at Aditya Silver Oak Institute of Technology.



**-Deepsinh Solanki**

As I started my journey in Engineering, I learned lots of things, not only subjects of engineering but life skills too. Chemical Engineering Department supported me and guided me on every project I was working on. The environment in the classroom encouraged me to focus and ask questions, my inquisitive mind thrived as I got answers of every silly question. :- ) Engineering is not a subject or skills to be taught using books, it is entirety bundle of information, abilities, experience, communication and innovation, which I found here completely!

*"Chemistry begins in the stars. The stars are the source of the chemical elements, which are the building blocks of matter and the core of our subject."*

# WORDS OF WISDOM

I was always fascinated by the concepts of atoms molecules, knowing about electrons and electronic configuration of various compounds when I studied in early high school. While studying in 12th grade as a PCM student I got to know more about the concepts like Kinetics, Reaction mechanism, etc. and knowledge in subjects physical chemistry, organic chemistry, inorganic chemistry etc while performing various chemical laboratory Experiments. It hence enhanced not only my curiosity but also my interest in this particular subject CHEMISTRY, which led me to pursue Chemical Engineering at Aditya Silver Oak Institute of Technology, Ahmedabad. With the increasing depth of the scientific and engineering concepts, the growth of my practical knowledge, technical skills, as well as chemical plants in industrial areas increased.

I got an opportunity to know and learn about different concepts of chemical engineering which I can relate in our daily routine lives. It hence made me more curious to know more about conceptual, practical and technical Concepts rather than being restricted by the bookish knowledge.

Then after the internships, lab experiments at college level, various seminars and workshops, industrial-scale visits enhanced my willingness to become a deserving Chemical Engineer.



**-Kena Dave**

I hence believe and I've learnt so far from my journey as a part of chemical engineering student is that, "Chemical engineering is like a Big universe, The more you learn concepts of chemical engineering and chemistry lesser it will be comparison of the knowledge which indeed exists."

*"It's not only important to hold a degree of engineering , but it does take lots of efforts, time, hard work and dedication, your interest, your willingness to be the successful and honest engineer, who can serve the society and the world and do something really fruitful in this field."*



# WORDS OF WISDOM

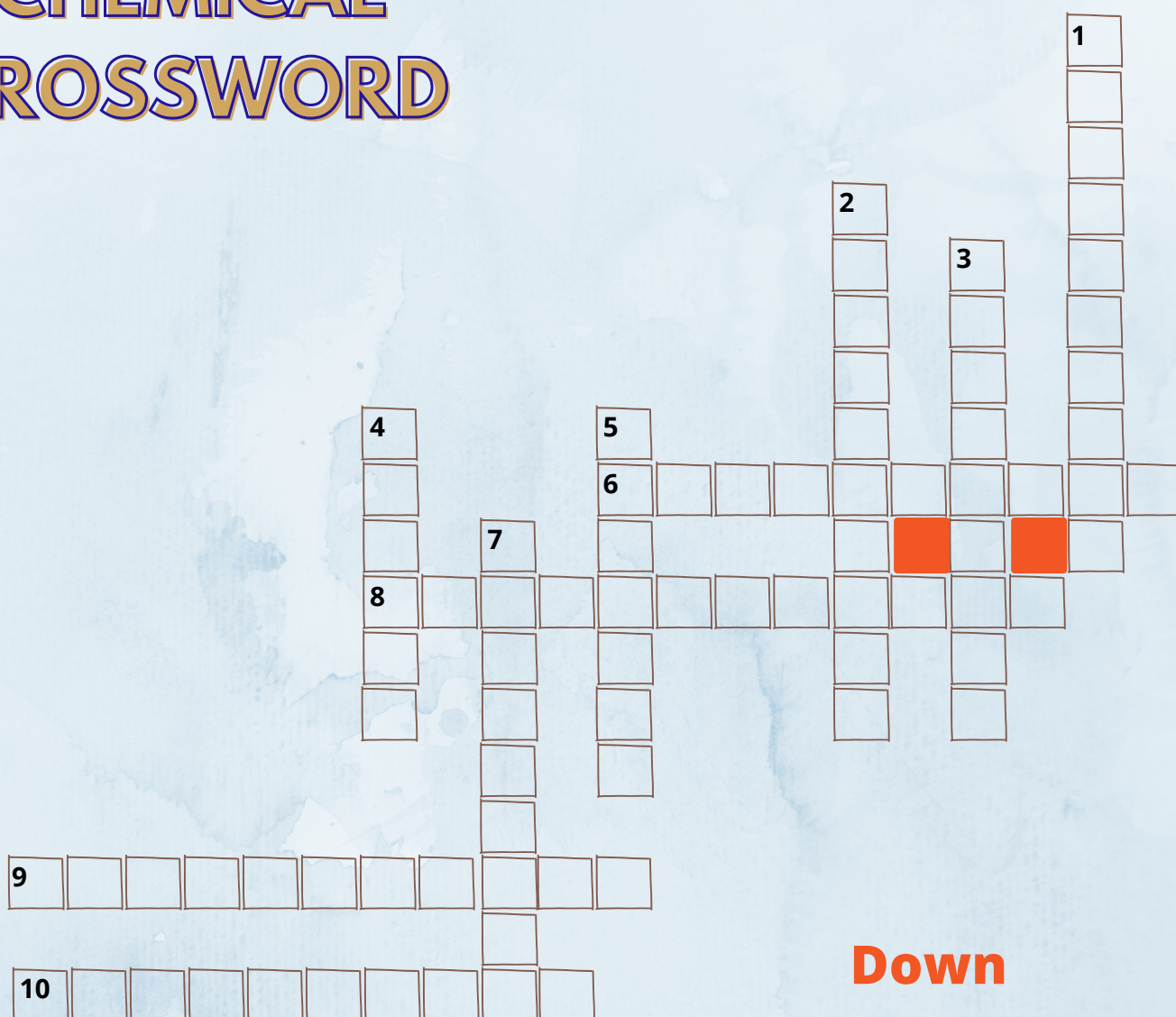
I never wanted to be a Chemical Engineer in my life. I failed in my 12th standard, but I got 4th rank in the first semester. I wish to work hard to make my career and goal in Chemical Engineering and also to make faculties proud and I wish to work hard for a long time. Even though Maths was my weakest subject I cleared it due to the Support of faculties and also I took part in lot of events. Today I'm part of the same events and Clubs that I never thought I would be because of constant support and motivation given by my faculties and friends. Last but not least, My words of wisdom are:



**-Avani Raval**

*"Don't stop when you're tired. Stop when you're done."*

# CHEMICAL CROSSWORD



## Across

6. Process in which substance is captured and energy is transformed
8. A process used to purify water by the removal of mineral ions
9. The joining of colloidal particles to form a larger mass of particles
10. Lowest temperature at which a liquid gives off enough vapor to form an ignitable mixture with air

## Down

1. A mode of heat transfer caused by the movement of currents within a fluid
2. device used to turn liquid substance to gaseous form
3. A conductor of electricity through which an electric current enters or leaves an electrolyte
4. Semi solid slurry produced from industrial process
5. A process of food preservation for long-term storage
7. The process of movement in which molecules of one substance move and penetrate other substances.

# TEAM NEUTRALIZE



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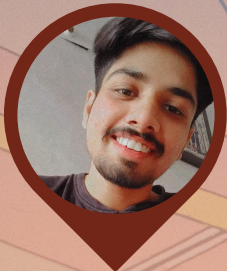
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Dr. Rajendra Mohite



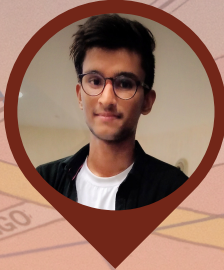
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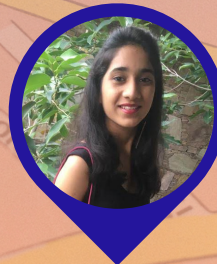


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