KAIZEN-2K19, L. D. COLLEGE OF ENGINEERING

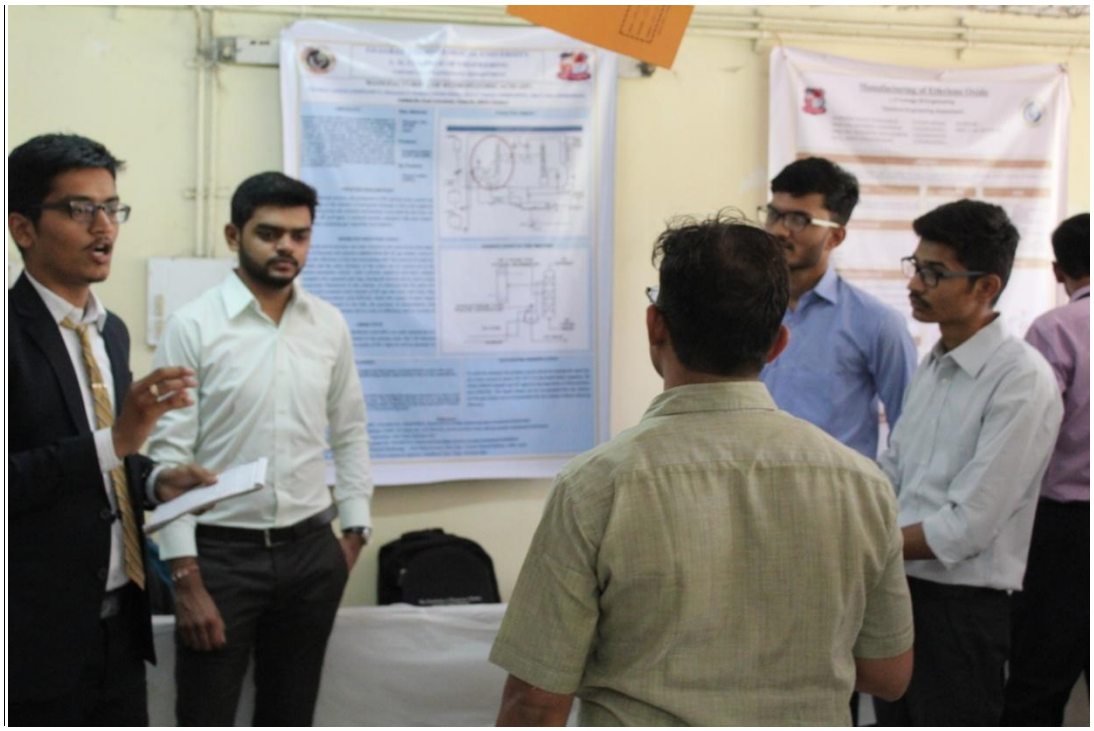
11th & 12th April, 2019.

Chemical Engineering Department:

The project fair – 2019 of Chemical Engineering Department as a part of KAIZEN – 2019 was organized on 11th& 12th April, 2019. There were 19 groups of B. E. Final Year students and 13 M. E. Final Year students participated in the event. The projects were displayed in the classrooms of Chemical Engineering Department. The projects of the B.E. and M.E. students were displayed in the form of posters supported by the experimental setups, models and laptops. The projects were evaluated by Prof. (Dr.) Jayesh Rupareliya, Professor in Chemical Engineering, Nirma University, Ahmedabad and Shri. Himanshu Sagar, Mott Macdonald, Ahmedabad.

Principal Prof. (Dr.) G. P. Vadodaria along with media personnel and other dignitaries visited the project displayed by students. They took great interest in the projects and encouraged the faculties and students to take up more research activity in the department. The students enthusiastically presented their project work to the other dignitaries and students who visited the department throughout the day.

The student who visited the event got information about innovation aspects in Chemical engineering field and its importance in today's context. All the dignitaries and students who were present during the event gave a very positive feedback about the event.

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Undergraduate Winners Detail

FIRST PRIZE WINNERS

POJECT TITLE: Biodiesel production Using Nanoparticles

PREPARED BY:

Name	Enrollment No.	Contact No.	Email ID
Gandhi Kashyap	150280105015	9429887946	Kjgandhi217@gmail.com
Vanar Aniruddhsinh	150280105003	8733871565	Aniruddhvanar4537@gmail.com
Gupta Ajay	150280105018	9033910130	Ajaygupta147895@gmail.com
Sakerwal Himanshu	150280105051	9824377076	Himanshusakerwal315@gmail.com

GUIDED BY: Prof. H.N. Pandya

PROJECT DESCRIPTION:

Biodiesel can be prepared by transesterification with alcohol using catalyst. Since a long time homogeneous and heterogenous catalyst have been used as they are accessible due to high reactivity and low cost but post treatment is expensive and if we come to heterogenous catalyst the process become cost effective but due to mass transfer resistance, more time consuming and less effective so the need of Nano catalyst to make biodiesel has arisen. Bio Diesel can be produced by using ZnO nano catalyst which is efficient and effective. High yield and high conversion can be obtained.

SECOND PRIZE WINNERS

POJECT TITLE: Nanophotocatalysis for wastewater treatment

PREPARED BY:

Name	Enrollment No.	Contact No.	Email ID
Agrawal Mohit	150280105001	8735883950	mohitagrawal.4503@gmail.com
Maniar Vishvesh	150280105026	9925000445	mvishvesh@gmail.com
Mehta Kartik	150280105027	7984269767	mehtakartik369@gmail.com
Mesvania Dhara	150280105028	8264160486	dharamesvania@gmail.com

GUIDED BY: Prof. T.S. Rajaraman

PROJECT DESCRIPTION:

This project deals with "Nanoparticle Photocatalyst" which is a novel method of tackling the problems of wastewater using solar energy. Since visible region constitutes 45% of solar spectrum as compared to 5% UV. Therefore, we have synthesized black TiO2 photocatalyst which is active under visible light. Moreover we also incorporated magnetic recovery technique by doping our black TiO2 with Fe3O4 for making it a green and sustainable photocatalyst overall. In a nutshell, photocatalysis promises to be one of the better alternatives to existing treatment techniques and our work has a great scope for future research work and its eventual commercialization.

THIRD PRIZE WINNERS

POJECT TITLE: Simulation studies for hydrogen production via steam reforming process

PREPARED BY:

Name	Enrollment No.	Contact No.	Email ID
Devanshi Dave	150280105011	8153960562	devanshidave27@gmail.com
Jainish Gandhi	150280105014	7567211655	jainishgandhi275@gmail.com
Nishant Patel	150280105040	9737593923	nishantpatel608@gmail.com
Milin Prajapati	150280105046	9712543912	prajapatimilin24@gmail.com

GUIDED BY: Prof. R.R. Patel

PROJECT DESCRIPTION:

In Today's world demand of fuel is increasing at an alarming rate but the reserve stocks of fuel would exhaust with increasing such demand. To compete with this problem an alternative to this is must. Fuel cell can be one of the solution to this problem. Hydrogen can be used as a fuel in Proton Exchange Membrane Fuel Cell (PEMFC) providing an advantage of being a non-polluting fuel. Storage of hydrogen is an issue so for this application on site production of hydrogen is required. A Typical method for hydrogen production constitutes a reforming unit SR(Steam Reforming) or ATR (Auto thermal reforming reactor) for fuel conversion to Syn gas, followed by two Water Gas Shift Reactor [HTS(High Temperature Shift Reactor) and LTS(Low Temperature Shift Reactor)] and APROX (Preferential CO Oxidation reactor). If CO2 absorption unit is introduced prior to the Water Gas Shift Reactor then it will increase the conversion of oxidative reaction of CO and thus concentration of CO in exit stream will be minimal offering an advantage of increased energy efficiency of fuel cell. In Fuel Cell, the concentration of CO in Hydrogen stream will poison the electrode of fuel cell if present in greater amount. For the same ASPEN plus is used to calculate the operative condition for checking the energy efficiency of the system and simulating the process. Also, the comparison between the conventional and suggestive process is done at the end.

Post Graduate Winner Details

FIRST PRIZE WINNERS

PROJECT TITLE:Preparation and Characterization of Deep Eutectic Solvents and their Application as Draw Solute in Engineered Osmosis.

PREPARED BY:

Name	Enrollment No.	Contact No.	Email Id
SONARA YAGNESHKUMAR MUKESHBHAI	170280716018	9724037545	yagnesh.ms255@gmail.com

GUIDED BY: Prof. S. M. Dutta

Project Description:

The prospects of concentration of various feed water using deep eutectic solvents as draw solute in engineered osmosis will be studied. The project work includes preparation and characterization of various deep eutectic solvents and a detailed study of their merits for its possible application as draw solution based on various parameters like flux rate, reverse solute flux and ease of recovery. A bench scale forward osmosis set up will be used for performance analysis of various DES. Recovery and reuse of draw solution using a suitable technique will be devised.