

CHEMICAL ENGINEERING



NEWSLETTER
April – May 2019

Key events

DST and DBT Project Grants

Expert talks

Parents Teacher Meeting
2019

Industrial visits: IFFCO, Kalol

Student interaction and
farewell

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EDITORIAL TEAM

Dr. Lubhani Mishra (Coordinator)

Dr. Abhishek Yadav (Co-coordinator)



Prof. T. P. Singh
Former Director, SOT,
PDPU

From the Director's desk

Dear reader,

I am delighted to introduce this edition of the Chemical Engineering department newsletter. We intend to make it a regular publication and to use it to keep you in touch with news and developments related to the Department.

I take this opportunity to congratulate the editorial team for bringing out this newsletter, which in itself is an achievement considering the effort and time required. May all our students, staff and faculty soar high in uncharted skies and bring glory to the world and their profession with the wings of education.



Dr. Swapnil Dharaskar
HOD, Chemical Engineering, PDPU

From the HOD's desk

It gives me immense pleasure to share newsletter of the Chemical Engineering Dept., April-May 2019. The Department of Chemical Engineering at PDPU, Gandhinagar is one of the premier departments that provides a unique educational and research environment. We have a major emphasis on interdisciplinary and industrial collaborations. Our primary missions are to educate undergraduate and graduate students, and to discover and disseminate knowledge through research. The Department is committed to achieving excellence in these activities, and evaluates the success and leadership of its programs using the highest standards of quality, innovation, & visibility, while at the same time providing a friendly and supportive atmosphere.

From the mentor's desk



Dr. Anurag A. Gupta
Chairman, IPR Apex Council & Senior
Mentor, PDPU

Welcome to our newsletter!

As you read through the pages of this newsletter, you will learn about our wonderful student centric activities and get a feel of vibrancy and strength of the Chemical Engineering Department.

Chemical Engineering is a department under School of Technology (SoT) that prides itself on providing world-class differentiated learning and research opportunities; creating strong teacher-student relationship, and instilling in students the ability to think, to learn, to achieve, and to care.

Entire faculty is dedicated to continuous learning through professional development and always eager to discover the most effective ways to provide the best possible educational methodologies. Department has high expectations for our students and fellow colleagues through trust, hard work, and positive reinforcement of our collective strengths.

As I see, students are nurtured and encouraged to excel in the academic areas and the faculty efforts are focusing on building student capacity to engage in the learning through participation and effective interaction. The focus on energy based societal research projects further help our students for continual overall improvement and getting aware about the societal problems and finding economically viable solutions thereof.

For the benefit of our newly joined faculty members, we plan to undertake unique initiative where mentorship will be provided to them by senior colleagues for understanding various aspects of teaching, research and consultancy initiatives of the department.

We still have a long way to go and I hope that this brief report demonstrates that the Department is making good progress.

I am proud to be associated with the department as Senior Mentor and extend an invitation to you all to give suggestions so as to help making future ready students, proving solutions to the energy related issues with effective societal linkage.

I hope you enjoy reading this Report that will gives you an insight into the work that we do and the progress we have made as a department in partnership with others. Our colleagues are our greatest resource, and I'm proud to say we have a team committed to working together for the success of the department.

FACULTY ZONE: AWARDS/ HONOURS

Dr. Pravin Kodgire worked as an organizing committee member for the two day conference and exhibition on "Application of Nuclear Energy in Food & Agriculture, water, industry, and sewage treatment' organized by PDPU, Gandhinagar and Department of Atomic Energy, Government of India in March 2019.

Dr. S. Dharaskar was invited to interview the Impelled Expert by the Quality Council of India at NABET, New Delhi.

Dr. Pravin Kodgire and **Prof S. Kachhwaha** delivered an expert talk on 'Biodiesel Production: Feed stocks and Techniques', Application of Nuclear Energy in Food & agriculture, Water, Industry, and Sewage Treatment, PDPU, Gandhinagar and Department of Atomic Energy, Government of India in March 2019

FACULTY ZONE: PUBLICATIONS

Mr. Anirban Dey along with **Dr. S. K. Dash** and **Ms. Sweta Balchandani** published the following journal publication: "Investigation on the inclusion of 1-(2-aminoethyl) piperazine on the equilibrium CO₂ solubility of aqueous 2-amino-2-methyl-1-propanol".

*The present work demonstrates the experimental and theoretical study of equilibrium CO₂ solubility in a potential absorbent, aqueous 1-(2-aminoethyl) piperazine (AEP) and its blend with 2-amino-2-methyl-2-propanol (AMP) and has been published in **Journal of Molecular Liquids** in May 2019.*

Dr. Abhishek Kumar Gupta published a journal publication: "Structure and dynamics of atactic Na⁺-poly(acrylic acid) (PAA) polyelectrolyte in aqueous solution in dilute, semi-dilute and concentrated regimes".

*In this work, authors have explored the effect of concentration and charge density on local & bulk structure, dynamics and thermodynamic properties of anionic polyelectrolyte PAA in aqueous solutions ranging from dilute to concentrated regimes and has been published in **Molecular Simulation** in April 2019.*

PROJECTS

Dr. S. Dharaskar and **Dr. Manish K. Sinha** were awarded the project grant for "Structure, interaction and Process for Energy Efficient CO₂ separations using Novel Ionic Liquids supported membranes" submitted under DST-DBT call for IC#3 worth Rs. 60 lacs.

Dr. S. K. Dash's project titled "Design and Demonstration of Intensified CO₂ Capture with Cost Effective- advanced Process. (INDIA-CO₂) has received recommendation of a project grant of INR 70 lakhs from DBT, Ministry of Science and Technology, Govt. of India. This project has International collaboration with Department of Chemical and Biological Engineering, The University of Sheffield, UK; Department of Chemical Engineering, Monash University, Australia, and Carbon Clean Solutions Ltd, UK.

Dr. S. Dharaskar has been awarded under Indo-Finland Mobility Research Scheme, jointly with DST, India and Academy of Finland.

Dr. Suverna Trivedi received an International project grant of Rs. 37.5 Lakhs under King Khalid University from Saudi Government.

FACULTY ZONE: CONFERENCES/WORKSHOPS

Dr. S. Dharaskar attended 3rd National Symposium on **Shaping the Energy Future: Challenges & Opportunities (SEFCO)-2019** during 10th to 11th May 2019 at CSIR-Indian Institute of Petroleum (IIP), Dehradun.

Dr. Pravin Kodgire and his co-workers presented collaborative research work *"Experimental investigation of in-situ biodiesel production from Castor seeds (*Ricinus Communis*) using combination of microwave and ultrasound irradiation"* at **International conference on Innovative Applied Energy (IAPE'19)** during 14th to 15th March 2019 at **Oxford, UK.**

Mrs. Bharti Saini attended workshop on **"Incorporating Both Technical and Human Elements to Reduce Hazards and Vulnerabilities in sensitive facilities"** organized by Oak Ridge National Laboratory, Sandia Nation Laboratories and Texas A&M University/ Center for Nuclear Science and Policy Initiatives during 14th-16th May 2019 at PDPU, Gandhinagar.

Dr. Lubhani Mishra attended the **COMSOL Training Session** on 6th May 2019 organized at PDPU, Gandhinagar.

Mrs. Bharti Saini participated in **thesis writing workshop** on 15th May 2019 organized by PDPU Gandhinagar.

The faculties of Chemical Engineering Department attended **Scopus workshop** on 17th April 2019 organized by PDPU, Gandhinagar.

Dr. Dadi Suriapparao conducted a event on **environmental awareness creation** by displaying quotes on environmental issues during the FLARE event by ICT first year students. He also conducted **environmental projects display event** of student learning projects in the part of environmental studies course (II semester, ICT branch).



EVENT

PARENTS TEACHER MEETING 2019

Department of Chemical Engineering organized **Parents-Teacher Meeting Event** on 3rd May 2019 by the coordinators coordinator **Dr. Suverna Trivedi** and **Ms. Bharti Saini**. The main purpose of meet was to create a common platform where teacher and parents come together to enrich the student's educational experiences and discuss variety of issues, regarding all round development of students.

The event started with the welcome address to parents by **Ms. Bharti Saini**. She invited Prof. T. P. Singh, Former Director, SOT to address the parents for Institute Overview. The event was followed by a brief overview presentation of Chemical Engineering Department by **Dr. Swapnil Dharasakar**, HOD, Chemical Engineering.

The key points of some important concept explained by our faculty members are as follows:

- AIChE chapter benefits to students were explained by **Dr. Manish Sinha**.
- Training & Placement Details were described by **Dr. Ashish Unnarkat**.
- Gate importance and our involvement to prepare students was briefly explained by **Dr. Surendra Sasikumar Jampa**.
- Concept of compressive projects in detail was explained by **Dr. Sukanta K. Dash**



EVENT

T&P INTERACTION MEET – PRE FINAL AND FINAL YEAR

Department of Chemical Engineering arranged an **Interaction Meeting** on 1st May 2019 organized by **Dr. Ashish Unnarkat** and **Ms. Sweta Balchandani**.

It was an exclusive 3.5 hours of intense discussion filled Interaction Session of 3rd Year students with the 4th Year students placed with different companies - All of them shared their experience and success stories of grabbing a job. Total of 16 short talks on varied areas and job profiles from core chemical to marketing to techno commercial and consultancy were discussed. Students were happy to share and felt joyful on getting chance to speak and discuss. The session was well received by students all motivated to choose the path ahead. Few glimpses from the session are attached.

The key topics for discussion were placement preparation, cracking GATE examination, opportunities in IT sector and GRE practice and opportunities abroad.



All Speakers from Final Year Chemical Engineering with Dr Ashish Unnarkat

INDUSTRIAL VISITS



*An industrial visit was organized to **IFFCO, Kalol** for B.Tech 4th semester and M.Tech students as part of Industrial Orientation. The students were accompanied by **Dr. Ashish Unnarkat**, **Dr. Manish K. Sinha**, and **Dr. Abhishek Yadav**.*



***Dr. Manish K. Sinha** has visited **Naroda Enviro Project limited** to evaluate the CP project of his students.*

DEPARTMENTAL ACTIVITIES

EXPERT LECTURES



Mr. Mayan Shah, Process Control Consultant, Endurance consultancy delivered an expert talk on “*Process Control in Chemical Industries*” on 26th April 2019 organized by **Dr. Abhishek Yadav** and **Mr. Anirban Dey**.



Mr. Himanshu Sagar, Chief Process Engineer, Mott Macdonald delivered an expert talk on “*Process Design and Instrumentation in Chemical Industries*” on 2nd May 2019 organized by **Mr. Anirban Dey** and **Dr. Abhishek Yadav**.

DEPARTMENTAL ACTIVITIES

EXPERT LECTURES



Prof. B. P. Mandal, IIT Guwahati, delivered an expert talk on “*Greenhouse Gas Emissions Reduction Strategies towards Clean Energy*” on 6th May 2019 organized by **Ms. Sweta Balchandani** and **Mr. Anirban Dey**.

DEPARTMENTAL ACTIVITIES

PhD Dissertation



Mr. Kanubhai Parmar, Ph.D. student of **Dr. S. K. Dash**, has successfully defended his PhD thesis titled “*Strategies for Performance Improvement in Thermal Cracking Process*” on 6th May, 2019. Dr. Parmar is the first Ph.D. awarded candidate from the Department of Chemical Engineering, SOT, PDP.

DEPARTMENTAL ACTIVITIES

EVENTS

Dr. S. K. Dash visited to CO₂ capture and Utilization plant commissioned at **Tuticorin Alkali Chemicals and Fertilizers, Tuticorin, Tamil Nadu** for performance study. The plant is set up by Carbon Clean solutions with whom Dr. Dash is doing consultancy on Development of large scale CO₂ capture process.



Dr. S. Dharaskar visited **Advanced Gas Separation lab and Separation Process Division at IIP, Dehradun** and interacted with Dr. Shubham Paul and Dr. Ankush Bindwal. An MoU has also been agreed with PDPU after discussion with Division Head and Director, IIP, Dehradun.



Dr. Lubhani Mishra and **Dr. Abhishek Yadav** attended the **“Technical Presentation by ALTAIR Multiphysics”** which included an expert talk followed by demonstration on latest tools and techniques in Altair SimSolid on 23rd May 2019.

Dr. Dadi Suriapparao conducted a **group discussion on wealthy and healthy operation of chemical industries** among VI semester, chemical engineering students. The objective of the group discussion is to know the role of process equipment design course for development of process equipments.

The Chemical Engineering Department, PDPU participated in **Professional Educational Fair**, New Delhi on 1st and 2nd June 2019. and also at Patna, Kota and Bhuj. The faculties involved are **Dr. S. Sasikumar, Dr. A. Unnarkat, Dr. M. K. Sinha, Dr. S. Dharaskar** and **Ms. Bharti Saini**.



Dr. Ashish Unnarkat and team held the **counselling sessions** and showcased about PDPU to parents and aspiring students.



Dr. Ashish Unnarkat, Dr. S. Sasikumar, Dr. Lubhani Mishra, Dr. Dadi Suriapparao, Dr. B. R. Reddy and **Ms. Sweta Balchandani** interacted with **Dr. K. Chitra, Associate Professor, Chemical Engineering, Anna University, Chennai**.



New research facilities like **Hollow Fibre Spinning Unit** has been installed in MTO Lab, Chemical Engineering Department.

Dr. Lubhani Mishra conducted special lecture for 2nd year students on **“Importance of Numerical Methods in Chemical Engineering”**. The lecture included case studies for solving chemical engineering applications using numerical techniques.

STUDENT ZONE: FAREWELL Class of 2015



STUDENT ZONE: M.TECH DISSERTATION



STUDENT ZONE: EVENTS

4th Doctoral Committee Review of **Mrs. Parwathi Pillai**, Ph.D. Student under the supervision of **Dr. S. Dharaskar** was successfully completed on 15th May 2019 in the presence of **Prof. Sameer Dalvi**, Head, Chemical Engineering, IIT Gandhinagar.



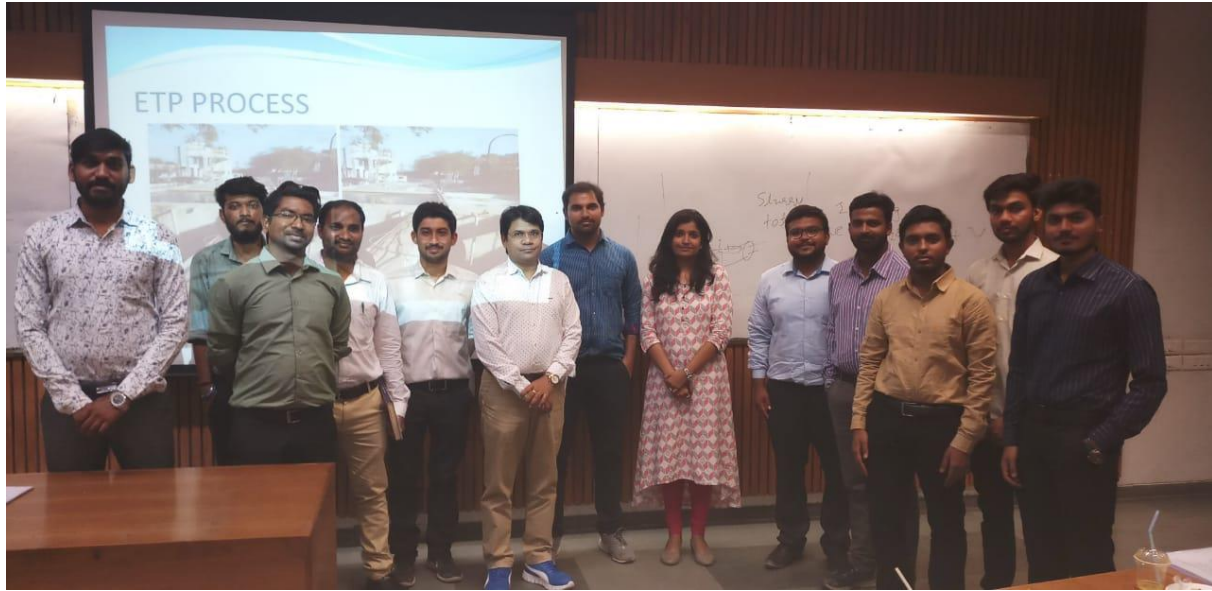
A visit was conducted for the **M.Tech. Chemical Engineering** students to the **Liquid Engineering Laboratory**, SPT, PDPU.



Dr. Kanubhai Parmar, RIL, Vadodara (Ph.D. student of **Dr. S. K. Dash**) was bid farewell by the department faculties after successful completion of his Ph.D. dissertation.



STUDENT ZONE: B.Tech Final Year Project Presentations



SNAPSHOTS



Faculty and student interaction with Prof. B. P. Mandal, Chemical Engineering, IIT Guwahati during his visit to PDPU.

A glimpse of the Alumni Meet 2019 organized at PDPU, Gandhinagar



Dr. Dadi Suriapparao conducted projects display event of student learning projects in the part of PED-II course (VI semester students) on 3rd May 2019 and students displayed projects along with posters to enhance the students creativity, team mentoring and knowledge application.



World Environment Day celebration with tree plantation by the faculties of Chemical Engineering Department in collaboration with IOCL.

