



IIChE NEWSLETTER 2021

VOL. 13, April – August 2021, ISSUE 2

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President's Corner



It is nearly two years since the world has been battling Covid-19. But great uncertainties still remain as to whether there will be a Third Wave of the pandemic, and, if yes, whether it will be deadlier than the Second Wave. As far as India is concerned, the number of new cases is fluctuating by day. With the festive season around, the fear of the Third Wave is real in the country.

Amidst these uncertainties all around, what is certain is the fact that Covid-19 has wiped out decades of progress on all fronts – economy, education, healthcare, etc. This is particularly true for the developing countries and poor countries. Economic rejuvenation is at the top of the agenda everywhere, which will, in its course, restore two other major pillars of social development, i.e., education and healthcare. During the pandemic period, while a massive number of youth have lost their jobs, perhaps even a greater number of children have lost access to their education.



Even if we cannot go back to the world as we knew it before the pandemic struck us, humanity all across the globe has to join hands and strive to regain the lost ground as much as possible. All the stakeholders have their own responsibility at this hour in order to bounce back.

With its limited resources and means, IIChE has been earnestly doing its bit during this crisis period not only for the sustenance of the Institute but also to explore newer ways to fulfil its principal objective of supporting Chemical Engineering education and contributing to the advancement of the profession through skill enhancement and meaningful training. At this critical juncture, when the process of education is in serious disarray, our intent is to enhance employability of the concerned community by alternative means of training and guidance.

The Online Students' Internship Program (OSIP) for the under-graduate students of Chemical Engineering and allied fields was launched last year to create an alternative means for the students to stay connected to the academic milieu through virtual training as life had literally come to a standstill due to the prolonged lockdown during the pandemic. Following a very encouraging response from the students, we continued with the program in 2021 as well. The OIP-21 (Online Internship Program) this year was equally successful.

IIChE signed an MoU with Siddaganga Institute of Technology (SIT), Tumakuru in July 2021 for establishing a Risk Management Centre of Excellence (RMCoE) at Tumakuru, India. IIChE will be involved in matters of professional outreach for the RMCoE. Specifically, IIChE will focus areas, such as, effective curriculum delivery, research, development and policy advisory. Another collaboration of significant potential has been initiated between IIChE and Terra Green Technologies Private Ltd., Kolkata for offering Online Industrial Start-up Internship. The first online training programme for UG/PG students and professionals will be held on 2 and 3 October 2021 on Quality Management System (ISO 9001: 2015).

Recently, in collaboration with Jadavpur University, the Institute has also made a new provision for accommodating a Research Intern. Accordingly, a PhD scholar, attached to Jadavpur University, will be given a part-time Fellowship by IIChE for conducting research work on behalf of the Institute.

The endeavour all this while has been to explore out of the box ideas and examine their feasibilities to facilitate meaningful skill enhancement and empowerment of the students and the professional fraternity.

In the midst of these new initiatives, we are keen on ensuring that the traditional programmes and projects of IIChE also continue unhindered. The 17th session of SCHEMCON is going to be organized on 22 and 23 October 2021 jointly by IISER, Bhopal and MANIT, Bhopal with active support of the IIChE Headquarters.

I presume, members already know about CHEMCON 2021, to be held during 27 – 30 December 2021. To be held in Bhubaneswar, CHEMCON 2021 is being organized by the Bhubaneswar Regional Centre of IIChE and CSIR-IMMT in association with ICT-IOC, Bhubaneswar.



Last but not the least; IIChE is gearing up for its Platinum Jubilee celebration in the year 2022. The celebration will begin with an international conference on Advances in Chemical and Material Sciences (ACMS-2022), scheduled to be held during 24 – 26 February 2022 in Kolkata.

Details regarding all these events are available on the IIChE website.

Even though we are not yet out of the woods and the fear of another wave of the pandemic still looms large, nonetheless, it is time that with utmost caution and care, we picked up the pieces and got back to our life as we knew it. Let's keep our fingers crossed that the worst is already over and together we will be out the tunnel soon.

Thanking you,

M.K. Jha
jhamkin@yahoo.co.in

OBITUARY

With profound grief, we announce the sad demise of our following respected Members:

Dr. M.K. Sarkar (LF 01692). The late Dr. Sarkar was a member since 1967.

Prof. G.J.V. Raju (LF 03272). The late Prof. Raju was a member since 1972.

Mr. M. Ranga Rao (LM 09037). The late Mr. Ranga Rao was a member since 1989.

Prof. K. Raghubabu (LM 40988). The late Prof. Raghubabu was a member since 2010.

Mr. R.S. Sinha (LM 023470). The late Mr. Sinha was a member since 1973.

We offer our heartfelt condolence to the bereaved families of the departed Members.



Advances in Chemical and Materials Sciences (ACMS-2022)

IIChE will be celebrating its Platinum Jubilee in the year 2022. The Institute Headquarters is gearing up for the year-long celebration of the Platinum Jubilee in a befitting manner. The inauguration of the year-long celebration will be marked with an International Conference under the title of **Advances in Chemical and Materials Sciences (ACMS-2022)**, to be organized in Kolkata during 24 to 26 February 2022. The event will be organized in association with National Institute of Technology (NIT) Jalandhar; Heritage Institute of Technology (HIT), Kolkata and Osmania University College of Technology, Hyderabad. The venue for the conference will be the HIT.

To be held in the hybrid mode, i.e., offline and online, the objective of ACMS-2022 will be to bring together renowned scientists, academics, researchers, top-notch industry brigade under the umbrella of the conference for intensive interface as well as exchange of knowledge and ideas regarding the latest developments in the domain of Chemical and Material Engineering and Sciences. There will be special platform for under-graduate and post-graduate students for presenting papers in Technical Sessions. Topics to be addressed will include Materials Science and Engineering, Energy Science and Electrochemistry, Advance Chemical Engineering Materials and Applications, Carbon, Polymer, and Composite, Advanced Material for Biochemical Science and Engineering and Chemistry and Environment. Select papers of high-quality, presented at the conference, will be published in acclaimed research journals, such as, Materials Today: Proceedings; The Journal of Indian Chemical Society and Indian Chemical Engineer, subject to the peer review process.

For the details, please visit: <http://acms.iiche.org.in>. You may also contact: Dr. Avijit Ghosh, Organising Secretary, ACMS-2022. Mobile No. +91 9830752111



Online Internship Program-2021 (OIP-2021)

This year's Online Internship Program, i.e., OIP-2021, has been in progress in batches since February. Like the previous year, OIP-2021 has evoked very encouraging response from the students. Courses are being offered in eight subjects, namely, Six Sigma (Yellow Belt); Chemical Process Technology; Petroleum Refinery Engineering; Project Management; Petrochemical Engineering; Process Safety Management; Zero Liquid Discharge Management and Biochemical Engineering.

We share with our members some of the feedbacks received from the Subject Experts as well as the Students.

Feedbacks from Subject Experts

PROF. SUNIL BARAN KUILA, Dept. of Chemical Engineering, Haldia Institute of Technology, Haldia

It was quite helpful for the students, particularly under this pandemic situation.

MR. SUSHANTA KUMAR ROY, Formerly with Balmer Lawrie & Co. Ltd., Kolkata. Presently Freelance trainer and Auditor, lab management.-NABL

IIChE, indeed, is doing an excellent job and I am proud of the fact that it has exceeded every expectation of graduating professional students under such pandemic situation. Also the way, the organizing members and coordinators handled /managed to cater the services, really showed resilience. I am sure they will continue to exceed even expectation that is needed till we overcome current crisis. At the same time, being a part of the esteemed society, I feel privileged to be part of the service also.

MR. PRASAD TL GUPTA, Bhaba Atomic Research Centre, Trombay

OIP 2021, being the 2nd edition, is well planned. Google meet platform features are also ok.

DR. SUDIPTI ARORA, Dr. B. Lal Institute of Biotechnology Jaipur

Amazing Experience for me! Grateful for the opportunity.

MR. MANANKUMAR DAVE, Lead - Engineering & Validation Qa, Kemwell Biopharma Pvt. Ltd., Bengaluru

Well planned and organized.



MR JOY SHAH, Innov8 Protech Solutions, Sustainability and Management Consultant, Surat

PSM is one of the main requirement of high hazards industries in view of many accidents in recent time. Students have shown their keen interest to learn subject. We have covered many aspect and touched only introduction.

MR. PRATEEK JOSHI, Intas Pharmaceuticals Limited, Ahmedabad

The OIP 2021 was a fantastic opportunity to interact with the young scientific minds on interesting topics. It is a medium to share best industry practices to students and contribute in making them industry ready. Looking at the current scenario it is important to include industrial know how in the academic curriculum of the students so that the theoretical knowledge can be translated into the applied form.

DR. PRASHANTH ASURI, Department of Bioengineering, Santa Clara University, USA

Good forum to share information with the students and encourage them to join careers of their choice.

DR. MADHU AGARWAL, Malaviya National Institute of Technology, Jaipur

It was a great experience in coordinating this program and also an opportunity to deliver lectures to the budding engineers. The program organized by IIChE is a great help to students in this pandemic situation. The overwhelming response and active participation of students made me to feel very enthusiastic to coordinate such program in future .

MR. ABHIJIT BIKAS PAL, Senior Manager - Honeywell UOP, Gurgaon

Excellent initiative, nicely managed. Such Online Internship should continue in post-Pandemic part as well. It can be converted to online certification course, in future.

MR. RAJIV NARANG, IHS Markit, New Delhi

This was very well arranged. A much needed initiative during the pandemic.



Feedbacks from Students

KRITI DUBEDI, Galgotias University

It was quite an interesting internship with a great learning experience. The lecture duration maybe minimised.

VRAJ V PANCHAL, Sarvajanik College Of Engineering And Technology (SCET), Surat

Everything is good, all the people from industry are experienced but there is only one problem of timing, need More time duration for explanation of individual lecture.

RAMA MAHITA KAMBHAMPATI, Anurag University

It would be better if we had recorded videos sent to our mail IDs for reference in case we missed a class.

MUTHINENI SAI TEJA, Sri Venkateswara University College Of Engineering

Overall the internship experience was good. It would be more help full if the classes are taught with more simulations.

ALTHAF K, CSIR-Central Electrochemical Research Institute

It was a great pleasure to be a part of this IIChE OIP 2021 and to get a limited but fruitful exposure about how the industrial sector works. It was a great opportunity for the students to attend the lectures and get to know what exactly is the difference between theoretical knowledge and real industrial exposure from well experienced professionals.

AMRUTH KRISHNAMURTHY, Manipal Institute of Technology, Manipal

There was too much information in a limited time so it was difficult to understand everything and remember. Even in pdf there was not much information to go back and read. If the lectures were recorded and sent along with pdf it would have been better. Sometimes couldn't understand what sir was speaking.

KOUSTAV MONDAL, Birla Institute of Technology, Mesra

Very good initiative. I found it very helpful and I could learn a lot of things. The study materials are also very well organised and very useful. Thanks IIChE to provide this opportunity.



SOUMYA RAJ, CSIR-Central Electrochemical Research Institute

The internship was a neat and nice exposure to industries, including Cement industry, Polymer, Petrochemical and PTA. I have learned a lot in it and all thanks to the Mentors. I would like to add a suggestion here. Since, it is an online internship, photos and videos taken by the people in the industry could have been shown to give information about size, handling as well as wear and tear of the equipment. This will give a real life view of industries. Overall, every session was good and understandable.

PRATYUSHA CHAKRABORTY, Kalinga Institute of Industrial Technology, Bhubaneswar

I am a second year student of Chemical Technology, in KIIT University. This was my first exposure to industrial working, I did not have much industrial knowledge earlier but through this internship, I had a very good insight into the working of the various industries, gained a lot of practical knowledge and got my foundations built very clearly. The respected faculty in each class have provided wonderful materials and explained every nook and corner very smoothly. I had a wonderful experience doing this internship. Thank you.

BURIGALA DINESH, Indian Institute of Petroleum and Energy, Visakhapatnam.

It would have been better if we had a separate interaction session with the Industrial professionals.

NITHIYANANTHAM M, Anjalai Ammal Mahalingam Engineering College

It is a good opportunity for the students to develop their skills. Hopefully we all make use of it.

MAKWANA VANDANA VIJAYBHAI, LD. College of Engineering

All the sessions were amazing and all the professors were very helpful to the students.

MUKUND BIYANI, Malaviya National Institute of Technology, Jaipur

In this hard and critical situation prevailing all around us due to covid, when it's difficult for the students to get internship, iiche has gave a sort of relaxation in this regard. It would be better if the internship fees would be kept slightly low as the students are facing financial problems in this hard time.

DHARAV PATEL, Ahmedabad University

Overall the OIP was very well designed and scheduled. I got to learn a lot about the subject Chemical Process Technology in greater detail. Also, the faculties were very friendly and replied to all the queries asked to them. Assignments, mini project and report writing was also helpful.



Regional Centre Activities

Due to the Pandemic, nearly all the programmes were held on the virtual platform or through hybrid mode.

Ankleshwar Regional Centre

A **Webinar** series, **KNOW INDUSTRIES AROUND YOU**, was launched on **9 May 2021**, which was held every Sunday for two months. The Industries which took part are: **GNFC** (9 May 2021), **RIL** (16 May 2021), **UPL** (23 May 2021), **Lupin** (30 May 2021), **GFL** (6 June 2021), **OpAL** (13 June 2021) and **Aarti Industries** (20 June 2021).

A **Lecture on Challenges and Practical Solutions towards Cleaner Technologies at GNFC - Chemical Products Processing** was delivered to the students of Government Engineering College (GEC), Bharuch by Hon Sec (AI Shaikh) on **12 April 2021**.

A **Lecture on Pumps and Valves** was delivered to the students of **Shroff Rotary Institute of Chemical Technology (SRICT)**, Bharuch by **Mr. Rilesh Mehta**, Joint Hony. Secretary, Ankleshwar RC on **15 May 2021**.

Hyderabad Regional Centre

The **14th M. P. Chary Memorial Lecture** was delivered by **Prof. Shrikant V. Joshi**, Division of Additive & Subtractive Manufacturing, Department of Engineering Science, University West, Sweden on **31 July 2021**. Organised by Hyderabad RC in collaboration with the Students Chapter, University College of Technology, Osmania University (UCT, OU), the topic of the lecture was **Engineering Our Way to Superior Surfaces for Industrial Benefit**.

Dr. U. Kamachi Mudali, Distinguished Scientist and Vice Chancellor, VIT Bhopal University and formerly, Chief Executive and Chairman, Heavy Water Board, was the **Chief Guest**. **Prof. M. K Jha**, President, IIChE and Professor (HAG), NIT Jalandhar and **Mr. M. Anantha Chary**, Chairman and Managing Director, Elbit Medical Diagnostics Pvt. Ltd., were the **Guests of Honour**. **Dr. Sanjay Bhardwaj**, Chairman, Hyderabad RC and **Prof. V.V. Basava Rao**, Principal, University College of Technology, Osmania University, were the Convenors. **Mr. S. Ilaiyah**, Joint Secretary, Hyderabad RC was the Co-convenor.

HealthCare 2030 Live – Reimagining Health Care through the Pandemic Lens, a half-day virtual **Summit** was held on **11 September 2021**. The Hyderabad RC is an outreach partner for the programme, which is being organised by IIT Bombay Alumni Association's HealthCare SIG. The summit will feature over 20 speakers and panellists from academia and leading industry houses.



Kochi Regional Centre

Futura, an award presentation ceremony for meritorious students, was held on **27 March 2021** along with a **Workshop** for the Final Year Chemical Engineering Student Members of the IIChE Kochi Regional Centre.

The function was inaugurated by **Dr. R.Venugopal**, Deputy Chief Controller of Explosives, PESO-Kochi. **Prof. Manoj N**, Vice Chairman, Kochi RC, welcomed the gathering and the Presidential Address was given by **Mr. K.F Sajo**, Chairman, Kochi RC.



Following the felicitation and the award presentation, a **Workshop** comprising three **Technical Sessions** was held. The first session was on **Battery – Energy storage Innovation & Solution for Pollution**, which was conducted by **Prof. Prasanth Raghavan**, Nano Engineering, CUSAT. This was followed by a second session on **What Industry Expects from Chemical Engineers**. It was conducted by **Dr. Babu Jose**, DGM Production, FACT. The third session was held on **Interview – A Practical Approach**, as conducted by **Mr. Harinath V**, DGM, International Trade and Risk Management, BPCL, Mumbai.

Mumbai Regional Centre

As part of the **Diamond Jubilee Special Lecture Series**, **Prof. Anirudhha B. Pandit**, Vice Chancellor, ICT, Mumbai delivered a Lecture, titled, **Rain Water Harvesting: Rural & Urban Opportunities** on **17 January 2021**. **Padma Shri Prof. G.D. Yadav**, Emeritus Professor Eminence, Former Vice Chancellor and R.T. Mody Distinguished Professor, ICT, Mumbai delivered a **Lecture**, titled, **Is there Any Charm / Scope Left in Chemical Engineering?** on **22 May 2021**.

Northern Regional Centre

The **28th Lovraj Kumar Memorial Lecture** is scheduled to be delivered on **24 September 2021** by **Dr. Faith Birol**, Executive Director, International Energy Agency (IEA), Paris. The programme will be organised by Lovraj Kumar Memorial Trust and the Northern Regional Centre.

Pune Regional Centre

On the occasion of the AGM of the Pune Regional Centre, **Dr. Ashish Lele**, Director, CSIR-NCL, Pune delivered a **Lecture** on the topic, **Hydrogen Economy in India**. Among various issues, Dr. Lele dwelt on the subject of energy and emissions in India; opportunities for hydrogen in India, and, efforts, made by the CSIR Laboratories for storage, generation and distribution of hydrogen in India.



Trivandrum Regional Centre

The following **Webinars** were held:

Title: **Bhuvan-Indian Geoplatform of ISRO**. Date: **11 February 2021**. The Speaker was **Mr. Arulraj M**, Group Head (I-C), Bhuvan Geoportals & Web Services Group, National Remote Sensing Centre, ISRO.

Title: **Multi-scale Material Modeling of Polymer, Rubber and Composite Using J-OCTA**. Date: **7 April 2021**. The Speaker was **Dr. Janardhan**, HL Team, Lead-Material Research, DHIO Research and Engineering, Pvt. Ltd.

Title: **Restore Our Earth: Earth Day 2021**. Date: **28 May 2021**. The Speaker was **Mr.. Sudalai S**, Assistant Professor, Centre for Pollution Control and Environmental Engineering, Pondicherry University.

IChE-CGG Panicker Gold medal and IChE-MR Kurup Gold Medal Award Function was held on **8 January 2021** for the toppers in Chemical Engineering / Bio-technology & Bio-Chemical Engineering from the engineering colleges that have IChE Student Chapters under the aegis of the Trivandrum Regional Centre.

The **IChE-CGG Panicker Gold Medal** was awarded to **Ms. Shana KP** from TKM College of Engineering, Kollam. The **IChE-MR Kurup Gold Medal** was awarded to **Mr. Joel Abraham** from Mohandas College of Engineering, Trivandrum. **Mr. Balamurali. D.**, District Collector, Palakkad, Kerala, presided over the function and presented the medals to the winners.



Student Chapter Activities

Dr. D. Y. Patil Institute of Engineering, Management & Research, Akurdi, Pune

Online **Industry Visits** were organised at **Pimpri Chinchwad Municipal Corporation Water Treatment Plant** for the second year students on **26 February 2021** and at **Pune Techrol Pvt. Ltd.** for the third year students on **5 March 2021**.

A **Talk** was delivered by **Mr. Vinit Ponshe** on '**Opportunities after Chemical Engineering in Industry and Postgraduate Studies**' on **2 July 2021**.

Government Engineering College, Valsad

Under the leadership of the Student Chapter Coordinator, **Mr. Rahul V. Prajapati**, a team of students produced an **Oxygen Generation PSA Plant** to address the shortage of oxygen during the second wave of the Covid-19 pandemic. The project was financed by the College itself.

Government Engineering College, Bharuch



A creative **Poster and Slogan competition**, titled, **Canvas Creation**, was held on **12 January 2021**. The theme was '**Green Technology and Sustainable Development**'. Students of Chemical Engineering from different colleges participated in the competition. **Palak Alkeshkumar Munjani**, a First Year Chemical Engineering student from **Government Engineering College, Valsad** was selected for the Best Poster and Slogan.

A **Webinar** was organized on **The Role of Green Chemical Technology in Sustainable Development** during **5 – 16 April 2021**, which was sponsored by **GUJCOST, Gandhinagar**.



Hindustan Institute of Technology & Science, Chennai

A **Workshop** was organised during **27 – 29 June 2021** on **Computational Fluid Dynamics in Process Industry & Plant Safety**. The invited speakers included **Dr. A. Subramani** (Staff Engineer, GE Aviation, Bangalore); **Prof. N. Balasubramanian**, (AC Tech, Anna University, Chennai); **Dr. Sujan Kumar B**, (Dept. of Chemical Engineering, BIT Sindri, Dhanbad); **Dr. Abhishek Dutta**, (Izmir Institute of Technology, Turkey and Consulting Engineer (CFD), Simuligence, UAB, Vilnius); **Dr. Abhishek Nandan**, (HSE Department, University of Petroleum & Energy, Dehradun); **Dr. T Srinivas** and **Dr. T. Srinivas**, (Dept. of Chemical Engineering, B V Raju Institute of Technology Narsapur, Medak); **Dr. Naren Shankar R**, (Dept. of Aeronautical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai); **Ms. Durga Raja**, (Process Engineer, Propharm Engineering LLP, Pune); and **Dr. Bhalamurugan Sivaraman**, (Physical Research Laboratory, Ahmedabad) .

A **Webinar on Chemical Engineering & Biotechnology in Water Pollution Control** was organized on **16 July 2021**. **Mr. Vijay Samuel G.**, Asst. Professor, Department of Chemical Engineering, HITS was the speaker, who dwelt on the subject in details.

L.E. College, Morbi



Talks were delivered by **Dr. Nitin Padhiyar**, IIT Gandhinagar on the i. **Role of Optimization in Process Control** on **9 March 2021** and on ii. **Role of Optimization in Engineering** on **10 March 2021**. Held through the hybrid mode, optimization techniques were explained to the engineering students of the college, emphasizing the problems arising in the chemical engineering applications. The second-day presentation dealt with several multi-disciplinary optimization problem formulations and provided solutions to those problems by using tools, such as, MATLAB, Excel, etc. The talks were followed by a question-answer session on both days.

Nandha Engineering College, Erode

Mr. K. Kamalahassan, Program Director, Optimis AI Sdn. Bhd., Malaysia delivered a **Talk** on **18 May 2021** on **Innovation and Start-up Scope in AI and ML**.



A **Webinar** was organized on **23 May 2021** on **Contemporary Researches in Chemical Engineering for Food Technology Applications**. **Prof. Dr. S. Venkatesa Prabhu** from Addis Ababa Science and Technology University, Addis Ababa, Ethiopia spoke on the role of chemical engineers in food processing industries.

SASTRA Deemed University, Thanjavur

The 8th edition of the national **Conference on Advances in Process Engineering (CAPE)**, the annual event of the IIChE Students' Chapter at SASTRA, was held from **20 February - 7 March 2021**. Invited lectures were delivered respectively by **Prof. Ashwin W Patwardhan**, HoD, Dept. of Chemical Engineering, Institute of Chemical Technology, Mumbai; **Dr. Hanno Brümmer**, Senior Vice President, Polyurethanes and Global Head of Production and Technology, Covestro, Germany; and **Dr. Dev Mohunta**, CEO, Commercial, Chemical and Development Company, Chennai. There were semi-technical events, **Chemathlon Round 01**, **Chemathlon Round 02** and **'Know Your Product'**. Three sessions of **Oral Presentations** were held on **21, 22 and 28 February 2021**. A **DWSIM Workshop** was held to give basic insights into designing a process model in DWSIM, a Free and Open Source Software (FOSS). The extravaganza ended with awards being given away to winners of various events.

Sarvajanic College of Engineering and Technology, Surat

A **Workshop**, titled, **Roadmap for Job Interviews / Recruitment in Industries**, was held on **3 April 2021** for the BE students of 3rd year and 4th year.

A **Webinar** on **Career in Modelling and Simulation for Chemical Engineers** was held on **23 April 2021** for the BE students of 3rd year and 4th year.

Shivaji University, Kolhapur

A Talk on **SWOT** (strengths, weaknesses, opportunities and threats) was presented by **Mr. V. Ananth Kumar Thimmarasu**, Executive Director, WE-INSPIRE ASK Pvt. Ltd. Telangana on **20 March 2021**.

Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam

A **Lecture** was delivered on the topic, **Innovations in Total Water Management**, on **20 May 2021** by **Mr. K. Sadanand**, Regional Sales Director, Solenis Technologies, SEA, SOLENIS.



STEER, the 7th National Conference on **Sustainable Trends in Energy and Environmental Resources**, was organised on 26 and 27 March 2021. A total of 40 papers were accepted for oral and poster presentation. A Workshop was also held on **Application of MAT LAB**.

G H Patel College of Engineering & Technology, Vallabh Vidyanagar

National Science Day was celebrated on 27 February 2021. The theme for this year's celebration was **Future of Science, Technology and Innovation**. The student activities consisted of Quiz, Chem Charades and Skits by students. The event was attended by 1st year students from various departments of the college.

A **Presentation** was made on the **Vizag Gas Tragedy on 1 January 2021**. The informative session explained how the mishap occurred due to styrene gas leakage in LG Polymers in Vizag, Andhra Pradesh on 7 May 2020. The programme ended with a Q&A session.



An **Orientation Programme, Chem Talks**, was held on **5 March 2021** for the 1st year students.

Vishwakarma Government Engineering College, Ahmedabad

A **Lecture** was delivered on **9 March 2021** on the topic of **Energy-Efficient Desalination: Material Science and Process Engineering Perspectives**. **Dr. H.D. Raval**, Senior Scientist, Membrane Science and Separation Technology Division, CSMCRI Bhavnagar was the speaker, who explained solar photovoltaic panel based modification for heat transfer in desalination unit and case studies on value addition of waste desalination membrane elements.

MISSION FISSION, a national level **Quiz Competition**, was held on **24 April 2021**. As many as 501 undergraduate students of Chemical Engineering from across the country registered for the contest. The winners were given away 1st prize, 2nd prize and the 3rd prize.

An **Awareness Programme** about the IICChE Student's Chapter Membership was held on **28 May 2021** with participation of a total of 50 2nd year students of Chemical Engineering.



Anurag University, Hyderabad

An Inter- college Student Chapter Competition was organised in collaboration with the Hyderabad RC on 5 June 2021. After the welcome address by **Dr. Sanjay Bhardwaj**, Chairman, Hyderabad RC, **Smt. Sheela**, Deputy Chief Executive (Retired), Nuclear Fuel Complex, Hyderabad delivered a lecture on the topic **Engineers and Atomic Energy in Service to Society**. An Essay writing competition was held with 22 participants from reputed institutes: BVRIT, Anurag University, CBIT, OUCT, JNTUH, JNTUA, BITS, and NITW on the topic, **Scope for Chemical Engineers as Entrepreneurs and For Start-Ups**. Elocution competition and Technical quiz competition were also held during the event. The programmes were followed with the **valedictory session** and **vote of thanks**. The winners of all the competitions were awarded prizes.

A **Training Programme** was conducted by the personnel of **Gyanway Global Solutions Pvt. Ltd.** for the students on the topic **DWSIM – Open Source Simulation Software** during **19 February to 25 May 2021**.

B V Raju Institute of Technology, Hyderabad

Chem-E-Tech, a national level online **technical Workshop** on Aspen, Matlab and Excel, was held during **7 to 9 June 2021**.

Birla Institute of Technology and Science Pilani, Hyderabad

During **February 2021**, two events were organised, namely, **Chemitionary**, a version of Pictionary but in the context of Chemistry and Chemical Engineering, and **Chem-E-Switch**, a simulator game where the participants were required to construct a circuit and make sure that other teams were not able to break it by answer questions on Chemical Engineering.

During **April 2021**, the ACE Magazine, *Equilibrium*, was released. It showcased thoughtful articles on chemical engineering related topics by faculty members, students and staff of the department.

Jawaharlal Nehru Technological University, Anantapur

Talks were presented on **Electrochemical Energy Storage Devices** and **Indian Cement Industry Scenario**, respectively, on **4 January 2021** and **6 April 2021**.

Chemical Engineers' Meet was held on **23 January 2021** and **27 February 2021** to discuss **Recent Innovations in Chemical Engineering**.

Intercollegiate Competitions on Essay Writing, Elocution and Technical Quiz were held during **June 2021**.



National Institute of Technology, Warangal

Unravel the Puzzle was conducted on **17 January 2021** to familiarise the students with the online academic exercises.

Semex, an orientation programme, was conducted on **22 January 2021** for the 3rd Year students and on **23 January 2021** for the 2nd Year students to introduce them with their respective semester subjects.

An **Intern Talk** was conducted on **22 March 2021** to guide the students on how to bag internships on and off-campus.

Research Wrap Up was held on **31 March 2021** in collaboration with **URA** and **Innovation Garage, CII**. The main objective of the event was to showcase the amazing work carried out in research labs across the disciplines. Ultimately, it will help the student community to think outside the box.

Jawaharlal Nehru Technological University, Hyderabad

College-level Competitions were organised on **30 March 2021**. Events included **Essay Writing Competition**: (Topic: Future of Energy & Environment in 21st Century); **Elocution Competition**: (Topic: Role of Chemical Engineers to Protect Environmental Pollution from Bulk Drug Industries Located Near Hyderabad); **Technical Quiz Competition**: (Topic: Chemical Engineering Basics, GATE topic, IChE related matters, Scientific information, World famous discoveries by renowned scientists and Technologists).

Tom's College of Engineering, Kottayam

A **Students Chapter** was inaugurated at the Department of Chemical Engineering on **12 June 2021** under the aegis of the Kochi Regional Centre, IChE. **Mr. Sajo K.F.**, Chairman, Kochi RC was the **Chief Guest** for the occasion and **Mr. Koya Venkata Reddy**, Hony. Secretary, Kochi RC was the **Guest of Honour**. Others present on the occasion on behalf of the college included **Mr. A.J. Paul**, Director; **Mr. Joby Joseph**, Principal and **Mrs Erlin Antony**, HoD, Chemical Engineering. Around 30 students participated in the event.

Indian Institute of Technology (ISM), Dhanbad

A **Webinar on Clean Energy Technologies** is scheduled to be held on **18 September 2021** in association with the Dhanbad Regional Centre, IChE.



Vishwkarma Institute of Technology, Pune

On **9 February 2021**, **Ms. Debismita Dutta**, a PhD scholar at Tyndall National Institute, Ireland gave a presentation on **the Future in Scientific Research**.

A group of passed-out students of the institute, made a presentation, **A Roadmap to Successful Future – GATE, Part I and Part 2**, respectively on **12 and 13 March 2021**.

A **Workshop** was held on **23 April 2021** on **Fluid Flow Training**. **Dr. Ajay Satpute**, MD, Converge Engineering Pvt. Ltd. was the main speaker at the event.

MIT Academy of Engineering, Alandi, Pune

Talks were delivered on **17 April 2021**, **23 March 2021** and **24 March 2021** by experts on various subjects of interest.

AISSMS College of Engineering, Pune

Webinars were held on **30 January 2021** and **30 May 2021**, respectively, on **Innovation Driven Entrepreneurship** and on **Scope of Piping Engineering in Oil and Gas Sector**. **Mr. Santosh Khawale**, Strategic Engineer, Desicolab, Pune was the speaker at the first event and **Mr Atul Singla**, Principal Piping Engineer, Petrofac Ltd., Gurgaon was the speaker at the second event.

MGM Jawaharlal Nehru Engineering College, Aurangabad

An **Essay Competition** and a **Quiz Contest** were held on the topic of **Safety** on **17 May 2021**.

Dr. Atul Vaidya, Chief Scientist, NEERI, Nagpur made a presentation on **Chemical Engineering Education at MGM University, Aurangabad – Scope and Career Opportunities** on **28 June 2021**.

On **19 March 2021**, as part of the inauguration programme of the IICHe Students Chapter at the Department of Chemical Engineering in IIPE, **Mr. Ankur Verma**, R&D Manager, BPCL delivered a **Lecture** on **Petroleum Refining Challenges in Primary Units**.

Trash to Treasure was organised on **4 April 2021**. The participating students were required to prepare from trash a model of any equipment or a unit process, which could be used by industry.



Gayatri Vidya Parishad College of Engineering, Visakhapatnam

A **Live Session** on **Interview Skills** was conducted by **Ms. Neha Agarwal**, Founder, Wiseup Communications on **16 May 2021**.

GMR Institute of Technology, Andhra Pradesh

Lectures were delivered on **22 May 2021** and **12 June 2021**, respectively, by **Mr. Gopee Krushna K.**, Lead Process Engineer, Dow Chemical's International on the topic of **Safety in Design** and by **Mr. V. Sai Teja Peddinti**, Founder & CEO, Mechindus Private Ltd. on the topic of **What the Future Holds for You – Career and Your Options**.

SCHEMCON– 2021

22, 23 October 2021

The 17th Annual Session of Students Chemical Engineering Congress (SCHEMCON-2021)

Central theme: 'Globally Advancement in Technology for Environment 2021' (GATE -2021)

Organized by IISER Bhopal and MANIT Bhopal, jointly with IChE HQ Kolkata.

Website: <https://conf.iiserb.ac.in/SCHEMCON2021>

CHEMCON 2021

27 - 30 December 2021

**Indian Chemical Engineering Congress &
The 74th Annual Session of Indian Institute of Chemical Engineers**

Organized by IChE Bhubaneswar & CSIR-IMMT in association with ICT-IOC Bhubaneswar

Website: <https://www.chemcon2021.com/>



IICHE Updates



The 75th Independence Day was celebrated in the IICHE Headquarters office in the presence of the IICHE President, Prof. M.K. Jha.

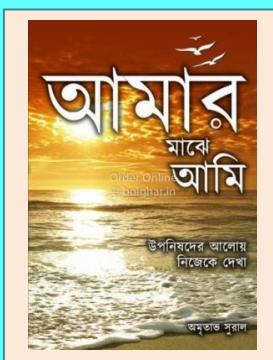
🌟 **MoU with Siddaganga Institute of Technology:** A Memorandum of Understanding was signed between Siddaganga Institute of Technology (SIT), Tumakuru and IICHE on 19 July 2021 for establishing a Risk Management Centre of Excellence (RMCoE) at Tumakuru, India. On the occasion, IICHE was represented by its President, Prof. M.K. Jha and SIT was represented by its Principal, Prof. S. V. Dinesh. The RMCoE will be set up with the objective of creating a pool of skilled Indian professionals to meet the need for *Atmanirbhar Bharat* (self reliant India). It will enable Industry-Academia partnerships in key areas of the risk management. The RMCoE will also be supported by Det Norske Veritas (DNV), a Norwegian Risk Management and Classification Society, with which SIT has separately forged an agreement. IICHE will provide professional outreach for the RMCoE, specifically focussing on the areas of effective curriculum delivery, research, development and policy advisory.

Under the collaboration, a monthly program of Leadership & Expert Talks, titled 'Certainly Uncertain', will be introduced on 30 September 2021. This month's talk will be on 'Artificial Intelligence & Data Mining for Risk Management'. Please visit the IICHE website (www.iiche.org.in) for the details and registration.



- ✚ **Collaboration with Terra-Green Technologies:** IIChE and Terra-Green Technologies Pvt. Ltd., a Kolkata-based enterprise, providing turn-key solutions for pollution related issues, have formed a collaboration in August 2021 for offering Online Industrial Start-up Internships in order to enhance entrepreneurial skill of the students in areas of energy, environment, fire, safety, designing, process simulation and artificial intelligence. Terra-Green is the winner of India 500 Start-up Award.

As part of the collaboration, the first online training program will be held on 2 and 3 October 2021 on the topic of Quality Management System (ISO 9001: 2015).



- ✚ **Book Publication:** Former Executive Secretary of the IIChE and a Life Member of the Institute, Mr. Amritabha Sural, has authored a book in Bengali, *Amar Majhe Ami: Upanishader Aloj Nijek Dekha (I within Me: Looking at Self in the Light of Upanishad)*, which explains the basic tenets of the *Upanishad* in a lucid language for those, who are interested to know about the *Vedanta* philosophy. The book has been widely received by the readers. It has also been highly appreciated in a critical review, published in *Udbodhon Patrika*, the sole Bengali mouthpiece of the Ramakrishna Math and Mission, having a readership of over 3 lakhs.

The book is now listed on Boighar.in. You could click the link: <https://boighar.in/product/amar-majhe-ami-amritabha-sural/>. Contact number: (0) 91230 34546.



Prof. H. Scott Fogler

1939 - 2021

Prof. H. Scott Fogler, Arthur F. Thurnau Professor and Vennema Professor of Chemical Engineering, passed away on 23 August 2021. Prof. Scott joined the Chemical Engineering faculty at the University of Michigan in 1965 as an assistant professor. Over the next five decades, he was intrinsically associated with the university, his department, his students and with the field of chemical engineering for that matter. In addition to teaching and researching, Prof. Scott served as the Associate Dean of the College of Engineering (1981-1984) and Department Chair of Chemical Engineering (1985-1990).



He was the author of world-renowned textbooks in Chemical Reaction Kinetics and in creative problem solving. Prof. Scott was also an exceptional researcher in upstream petroleum engineering and a service leader, not only at the University of Michigan but also at the national level. He was passionate about teaching and worked tirelessly to teach his students the tools and creative skills that they would use throughout their careers to make a difference in the world. He received a number of distinguished awards at the college, university and national levels. Prof. Scott also had 13 lectureships in his name. Indeed, his impact on Chemical Engineering changed the profession.

Inputs from <https://che.engin.umich.edu/2021/08/24/remembering-h-scott-fogler/> and <https://che.engin.umich.edu/people/fogler-scott/>



Focus

Missed Opportunities by Indian Chemical Industry: Case Studies

N.S. Venkataraman, Director, Nandini Consultancy Centre

The recent achievements in developing COVID vaccine in India by Bharat Biotech International Limited and successful development 2-deoxy-D-Glucose (2-DG), an anti viral as an adjunct therapy for moderate to severe corona virus patients by Defence Research and Development Organisation (DRDO), has certainly enhanced the faith of Indians about the capability of the Indian scientists and researchers. Such achievements have also been duly noted by several international agencies.

The achievements in a few other fields such as space science technology, nuclear power projects, research in the field of atomic energy, etc., have also enhanced the recognition of the country men about the creditable contribution of scientists for national development.

The chairman of Infosys has recently said that India is now on the cusp of major Artificial Intelligence (AI) innovations. Given the recent achievements in the field of A I in India such as development of Aadhaar or UPL, it is pointed out that the work that Indian researchers are doing is unique and Indian researchers are creating the world's best language capability by translating text to speech and language to language. Further, it is justifiably claimed that India can show to the world how well India can create such a platform.

All these are glorious and praiseworthy achievements that the country should be proud of.

However, going further and taking a good look at the overall chemical industry scenario in India in a holistic manner, one cannot but come to the conclusion that Indian chemical industry has missed many opportunities in the past to forge ahead due to variety of reasons. Certainly, the achievements made by Indian chemical industries are far lower than the Indian achievements in other fields such as space science technology, atomic research and others.

While it is fashionable now to blame government policies for the lack of adequate achievements in the field of Indian chemical industry, careful analysis would indicate that government has been proactive and cannot be blindly blamed for the near stagnant level of Indian chemical industry. The ground reality is that even for setting up medium scale chemical projects (sometimes even for small scale chemical projects), Indian project promoters are seeking technology from abroad and often end up paying exorbitant fees for acquiring the technology. Where are Indian R&D efforts? The Indian project promoters, investors, research and development agencies as well as trading houses involved in chemical industry have a lot to explain and it is high time that they should do careful investigation amongst themselves as to what they have achieved so far and what they have not achieved yet.

To cut the long story short, a few case studies of the missed opportunities by the Indian chemical industry are discussed in this article. While a few case studies are briefly described as samples, there are so many other opportunities remaining unexploited for whatever reasons.



One thing that should be noted here is that even as India is confronted with COVID 19 crisis for over eighteen months now, several chemical industries in India have turned out reasonably good performance and have surplus investable resources. While the intention is not to blame the managements and investors of chemical industries in India, it would be enough to say that several chemical industries have invested their surplus resources in unrelated areas, such as, real estates, mutual fund and others.

The glaring example that one cannot miss is that of the management of Reliance Industries, who thought it fit to move on to invest in information network, such as, Jio, retail marketing, etc. To this extent, the investment of Reliance Industries in petrochemicals and chemical industry is bound to go down. Rarely, we see international organisations like BASF, DOW and others investing their surplus resources in unrelated areas to such an extent but they have continued to plough the resources in further developing the core areas of functions. The example of Reliance Industries is pointed out here since it had glorious achievements in petrochemical industry in the past and many wonder why it has turned its attention elsewhere.

A few case studies given below of unexploited opportunities would highlight the cause for concern about the future growth profile of Indian chemical industry. All these projects have high level of relevance to Indian industrial and economic growth pattern.

Rutile-grade Titanium dioxide pigment:

Rutile grade Titanium dioxide pigment finds application in paint and coatings, plastics, paper and multi various industries. Present Indian demand is around 2,50,000 tonne per annum and Indian import is around 2,20,000 tonne per annum. There is only one producer by chloride process in Kerala. The raw material is ilmenite and chlorine, which are plentifully available in India. No new project is in the advanced stage of planning or implementation at present.

L-Lysine / L-Lysine HCl :

L-Lysine HCl is an amino acid, extensively used in poultry / cattle feed as input and in pharmaceutical formulations. The feedstock is starch and hydrochloric acid, which are available in India. The present import is around 60,000 tonne per annum. The product is not produced in India and no new project is in the advanced stage of planning or implementation in the country.

Citric acid:

Citric acid is used extensively in pharmaceutical, food and other industries. The present import is around 100,000 tonne per annum. Two units, which were set up several years back, were closed due to uneconomic capacity. The feedstock is starch, which is available. No new project is in the advanced stage of planning or implementation in the country.

Silicon metal:

Silicon metal is used as raw material for silicone compounds, alloying agent for aluminium alloy, as feedstock to the production on polycrystalline silicon (for use in electronic and solar energy sector), as raw material for silicon tetrachloride, ethyl silicate and fumed silica. The Indian import is around 70,000 tonne per annum. The feedstock is quartz silica, which is available. No new project is in the advanced stage of planning or implementation in the country.

**Alkyl Ketene Dimer Wax (AKD Wax):**

Alkyl ketene dimer wax is used as an industrial sizing agent for paper to increase the hydrophobic properties of paper. The feedstock is stearic acid, which is adequately available. The present import is around 9,000 tonne per annum. No new project is in the advanced stage of planning or implementation in the country.

Vinyl Acetate Monomer (VAM):

Vinyl acetate monomer (VAM) is an important intermediate used in the making of a number of polymers and resins for adhesives, coatings, paints, films, textiles and other end-products. The most important and largest use of VAM is in the manufacture of homopolymer polyvinyl acetate. The other use of VAM is in the production of polyvinyl alcohol, which is produced from polyvinyl acetate. The feedstock is ethylene or ethyl alcohol and acetic acid. The present import is around 180,000 tonne per annum. Two units were operating in India earlier and both have been closed for whatever reasons. No new project is in the advanced stage of planning or implementation in the country.

Algae biofuel:

Algae is a quick growing crop that has 25 to 30% oil content,. It needs only sunlight and carbon dioxide for growing. Poor quality water is adequate for algae cultivation.. Algae biofuel can be used as fuel. The by products include value added chemicals such as ethanol, butanol etc. by fermentation of algae biomass. Several projects are successfully operating in USA and other countries. In several regions in India, integrated algae-based complex can be set up , where algae fuel can be produced and used for small scale power generation to meet the local requirements. This would be an elegant way of integrating agricultural operation with industrial operation. No new project is in the advanced stage of planning or implementation in the country.

Methanol from municipal solid waste:

Methanol has widespread applications in various industries. Indian import of methanol is more than 2 million tonne per annum. Project for production of methanol from municipal solid waste is now successfully operating in Canada. A new project is being planned in Europe. Municipal solid waste is available in large quantity in India. No new project is in the advanced stage of planning or implementation in the country.

Di methyl ether (DME):

Dimethyl ether is a fuel that can be used alone or blended with LPG for use as domestic and industrial fuel. DME is extensively produced in China from methanol. By setting up several DME projects in India of economic size, import of crude oil / natural gas / LPG can be reduced to a considerable extent. DME is an eco-friendly fuel. The requirement of methanol can be met by import until such time that the domestic methanol capacity would be built up using as coal or other feedstock. No new project is in the advanced stage of planning or implementation in the country.

**Olefins (ethylene & propylene) from methanol:**

India is unable to set up several ethylene and propylene based projects due to scarce supply of ethylene and propylene in the country, which are difficult to import in large quantity. For example, India is importing more than 2 million tonne per annum of PVC as PVC capacity is not being built up due to non-availability of ethylene. So many other examples can be pointed out. Several ethylene / propylene projects from methanol of economic capacity can be set up in different parts of the country and several ethylene / propylene based projects can be set up. A number of ethylene/propylene projects, based on methanol, are successfully operating in China. The requirement of methanol can be met by import until such time that domestic methanol capacity would be built up using as coal or other feedstock. No new project is in the advanced stage of planning or implementation in the country.

Adipic Acid:

Adipic acid is used in the production of plasticizers, unsaturated polyurethane resins etc. The feedstock for adipic acid is benzene, which is adequately available in India. The import of adipic acid is around 35000 tonne per annum. No new project is in the advanced stage of planning or implementation in the country.

Acrylamide Monomer:

Acrylamide Monomer is used in water treatment, paper industry, mineral processing etc. The Indian import is around 15,000 tonne per annum. The feedstock is acrylonitrile, which has to be imported. No new project is in the advanced stage of planning or implementation in the country.

Bisphenol A:

Bisphenol A is used in the production of epoxy resin. The present Indian import is around 80,000 tonne per annum. The feedstock is phenol and acetone, which is produced in India. But phenol and acetone may have to be imported as they are in short supply. No new project is in the advanced stage of planning or implementation in the country.

Chlorosilanes:

Chlorosilanes are a group of reactive, chlorine-containing chemical compounds, related to silane and used in many chemical processes. Each such chemical has at least one silicon-chlorine bond. Chlorosilanes can be classified as organic chlorosilanes and inorganic chlorosilanes. Most of the silicone derivatives (fluids, elastomers and resins) are made from dichlorodimethylsilane. The Indian import is around 5000 tonne per annum. Organic chlorosilanes are not produced in India. Silicon tetra chloride, which is an inorganic chlorosilane, is presently produced in India. Basic silicone monomers and fluids and products, such as, siloxanes are imported. Silicon and methyl chloride are the feedstock. No new project is in the advanced stage of planning or implementation in the country.

**Epichlorohydrin:**

Epichlorohydrin is used in the production of epoxy resin and in miscellaneous sector. The basic feedstock for production of epichlorohydrin through the glycerine route is refined glycerin and HCl gas, which are available in India. The present import is around 70000 tonne per annum. One project is in the planning stage. There is scope for more projects, considering the growth potential in demand.

Xanthan Gum

Xanthan gum is used in food, personal care, pharmaceutical and other sector. Indian import is around 6000 tonne per annum. Xanthan gum is produced from carbohydrates such as glucose, sucrose, soluble starch. No new project is at the advanced stage of planning or implementation in the country.

Xylitol :

Xylitol is used as bulk sweetener, mainly in non carcinogenic confectionary and in oral hygiene preparations like toothpaste and mouth wash. The production process for xylitol from straw has been developed, using a bio process by Danish Institute of Biotechnology. The present import is around 300 tonne per annum. No new project is at the advanced stage of planning or implementation in the country.

Speciality chemicals for lithium ion battery cell:

The Government of India is putting forth extensive efforts to promote electric vehicles in India. For the electric vehicles, lithium ion battery is an essential component. Lithium ion battery cell is not being produced in India. While new projects for lithium ion battery cell are being planned, such projects require a number of specialty chemicals, such as, lithium carbonate, lithium hydroxide, electrolytes, separators, high purity natural graphite etc. No new project is at the advanced stage of planning or implementation in the country.

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