



IIChE e-NEWSLETTER 2019

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President's Corner



Dear Members,

I begin this column with my gratitude to the IIChE Members, particularly to the Council of IIChE, for electing me as the President of this august Institute. I am confident that with the active support of my colleagues at the Council as well as with valuable advice of the Senior Members of IIChE, I will be able to address all my obligations as President judiciously.

Student Welfare: Presently, IIChE has as many as 157 Student Chapters at Engineering Institutes, Colleges and Universities. For me, the priority would be to concentrate on these Student Chapters in order to reach out to the students and provide meaningful guidance to them to shape their career. Our Student Chapters should make use of social media, i.e., Face Book, Whatsapp, Youtube, etc., to reach out to the student community. I would also request all the Regional Centres of IIChE to get involved more actively with the Student Chapters and lend all-out support to them.

Dynamic Regional Centres: Regional Centres are the most indispensable unit of IIChE. It is largely through the 41 Regional Centres that IIChE can realise its ideals and objectives. As regards engineering education in our country, there has been a wide gap between academic courses and industry requirements creating a serious problem of unemployability of engineering graduates.

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For Chemical Engineering and its allied areas, IIChE is ideally suited to address this gap. In its 2nd meeting in March 2019, the IIChE Council has deliberated on the possibilities of various Regional Centres organising training courses on issues, such as, Process Plant Safety, Pollution Control, Cost Estimation, Six Sigma program, etc., for industry personnel in lieu of a lump sum fee. This initiative will hopefully take a concrete shape in near future.

Development and Resource Generation: IIChE, as a non-profit and autonomous organisation, needs constant drive for resource generation to sustain its activities. To a great extent, it is through its Individual and Organisational Members that the Institute pursues its diverse activities. However, due to a number of external factors largely beyond our control, of late the Institute has been undergoing financially trying times. Keeping this exigency in mind, I request our Members to make an effort individually and motivate fellow Chemical Engineers, who are their friends, colleagues, students, etc., in industry and academia to join the IIChE fold as Members. Equally important would be to have a greater numbers of Organisational Members to join IIChE. I sincerely hope that fellow IIChE Members and my colleagues at the Council would make a sincere effort on this account as well.

IIChE has been through phases of ups and downs in the past. Nevertheless, through its inner resilience and with dedication of its Members and associates, the Institute has sustained itself all through. I am confident that with collective effort of the Members, headquarters staff and well wishers, IIChE will tide over the present challenges as well and emerge stronger with a new road map.

Thanking you,

S V Satyanarayana (svsatya7@gmail.com)

OBITUARY

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

Dr. B.D. Kulkarni (HF 22498): A distinguished scientist and chemical engineer, the late Dr. Kulkarni was an Honorary Fellow since 2001. He passed away at the age of 69 years.

Mr. S.C. Pujari (LM 14158): A Member since 1996, Mr. Pujari passed away at the age of 80 years.

Mr. Satish Makhija (LM 10730): A Member since 1992, Mr. Makhija passed away at the age of 72 years.

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

TO OUR MEMBERS

We are happy to present the IIChE e-Newsletter in a brand new format. In the process, a few changes have been introduced in the contents as well. As part of this initiative, we invite from our members:

- i. Brief notes (approx. 100 words) about their outstanding achievements in recent period, (receipt of awards, fellowships, honour, major promotions, etc.), accompanied with a coloured PP photograph.**
- ii. Industry News (approx. 100 words)**
- iii. Concept note on newer areas of R&D (approx. 500 words)**

Please note that each of the submissions will be subject to final scrutiny by the Publication Committee for e-Newsletter.



RESEARCH SCOPE

Future Potential of Indian R&D: Emission Control for Coal Fired Thermal Power Plants

The stack emission standards were promulgated in December 2015 by the Ministry of Environment, Forest and Climate Change, Government of India for Indian coal fired thermal power plants (TPPs) as regards Sulfur Dioxide (SO₂), Oxides of Nitrogen (NO_x) and Mercury (Hg). This also pertains to tightening of particulate matter (PM) emission standard. However, limestone based Flue Gas Desulfurization (FGD) technology has also been recommended for 295 TPPs (total capacity of 1,22,672 MW) by different governmental agencies for removing only SO₂, though the promulgated standards are neither technology-based nor equipment based as in developed nations. A stand alone technological solution (FGD technology) may appear economic to achieve the target. A need-based outlook is more demanding with a techno-enviro-economically feasible solution for cleaning the skies from getting polluted.

A single technology, such as, the Multi Pollutants Control Technology (MPCT), developed recently elsewhere in the world for removing all the pollutants from the TPP, could be more economic than introducing separate technology for removing each pollutant that offers other benefits. In this light, indigenous MPCT technology, suitable under Indian condition, may be explored through R&D towards controlling emission from the TPPs, targeting lower water- and carbon-footprints. The outcome of such research could be exported to other industrial gas cleaning operations (business to business or multi-sectoral approach) as and whenever needed. The proposed strategy may be beneficial in the long run for the country. The technical area under consideration is classically falling under the domain of Chemical Engineering. Thus, there could be a considerable potential for Indian “**Chemical Engineers**” to cater to the TPPs for meeting the challenges of the newly promulgated emission standards in future.

Amitava Bandyopadhyay

Professor, Department of Chemical Engineering, University of Calcutta.
& Honorary Secretary. IIChE

[Note: Members interested to know more about the topic may like to read the article: A.Bandyopadhyay. Assessing the Current Practice and Policy with Recommendations for Emission Control Strategy for Coal Fired Thermal Power Plants under Indian Regulatory Framework emphasizing the Roles of R&D. Environmental Quality Management. Fall 2017. 27(1), 49–55, 2017.]



Focus

Process Safety and Risk Management- III



Technical Model and Site Safety Leadership Joy M. Shah

Prepare and Prevent, don't Repair and Repent. The chain is only as long as the weakest link – Unknown #

For Goal zero incident, the system needs to be developed with clarity and uniformity. As mentioned in the above statements, if you do not prepare to prevent, you will repent. Again, if any of the links in the system is weak, incident cannot be zeroed down. The subject is vast. Therefore, the following article is only a ready reckoner for site leadership.

To start with, I would like to consider the following objectives for safety management system.

The author is Founder and Chief Consultant, Innov8 ProTech Solutions, Sustainability and Management Consultant. Formerly, he was Sr. Vice President – Technical at Reliance Industries Ltd. He is also a member of the Chemical Process Safety Committee 2019, IIChE.

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1. All accidents and injuries can be prevented
2. Management is not only accountable but responsible for preventing injuries.
3. Working safely must be the most important condition of employment and all line managers and supervisors have a role to play.
4. All operating exposures can be safeguarded or avoided.
5. Training employees for work safely is an essential requirement for safety.
6. Prevention of personal injuries is good business sense to improve triple bottom line.

There are two branches of safety organisation, viz., Supporting or staff function and Implementing or line function. Although safety primarily involves line function, staff function also plays an important role involving Central Safety Committee and several subcommittees.



The role of Central Safety Committee, i.e., the safety department is:

1. Originating, coordinating and guiding the overall plant safety efforts.
2. Approving safety items and policies of plant wide nature.
3. Exchanging safety information between plant site and site areas.

The Central Safety Committee is supported by various sub-committees addressing each element of Process safety and behavioural safety, viz.:

- | | |
|--|--|
| 1. Process Hazards Analysis. | 2. Incident and Injury Investigation. |
| 3. Pre-startup Safety Review | 4. Management of Change |
| 5. Mechanical Integrity and Quality Assurance | 6. Contractor Safety |
| 7. Process Technology | 8. Emergency Planning and Response |
| 9. Safety Observation and Standard Operating Procedure | 10. Operating Discipline and Recognition |
| 11. Training and Capability development | 12. Audit and Assessment |

Each plant or a group of 2-3 plants can have such a dedicated committee, which will report to Central Safety Committee. Each committee consists of cross-functional team members from line function.

Each plant or group of 2-3 plants can have one Safety Coordinator. This is not a line function and the Safety Coordinator reports to Central Safety Committee. Safety Coordinator's role is:

1. Coordination of safety activities of plants and working of sub-committees.
2. Participation in Central Safety Committee.
3. Giving advice on:
 - a. Training employees.
 - b. Training of supervisors in line of function.
 - c. Safety observation.
 - d. Conduct and participation in investigation of incidents.
 - e. Learning from incident to reach out to right employees.
 - f. Requirement of government regulations.
 - g. Latest development in safety technology as well as learning from third party incidents.



Each committee works on specific area of safety management. These committees identify Strength, Weakness, Opportunity and Threat. They propose measures to overcome weakness and threat. In other words, they provide Risk Governance but do not relieve line managers and supervisors of their safety responsibilities.

Sub-committees prepare their charter, based on PSM/OD element guidelines, consisting of activities, deliverables as well as key performance indicator during the year, which are reviewed by Safety Coordinator and the Central Safety Committee.



The Committee can follow the above risk funnel for recognizing and managing risk factors for continuous improvement and for focusing on high hazards and very high hazards and risks.

Apart from technical models, site PSM leadership also involves the following aspects to develop safety culture.

1. Monitor safety performance

- a. Identify leading and lagging key performance indicators.
- b. Identify sources of data and ensure its regular availability and correctness.
- c. Ensure periodic monitoring, at least once per month. Find out deviation, trend and check on possible deterioration as well as improvement opportunities.
- d. Develop action plan and monitor progress of action plan.



2. Develop safety standards and job planning

- a. Plant and site management is essential.
- b. It applies to safety rules and procedures, work practices and conditions, emergency procedures, operating procedures, safety facility maintenance and housekeeping.¹
- c. It must be written by knowledgeable people who know the process.
- d. It has to be reasonable, agreed upon and understood by employees.
- e. It must be followed and enforced.
- f. There has to be check on job cycle for continuous improvement.
- g. There has to be job planning and allocation of reasonable work.
- h. There has to be job safety analysis or task-based risk assessment prior to job planning.

3. Safety observations and feedback practices

- a. Establish site-wide safety observation program.
- b. Include all supervisors after their training.
- c. Measure the effect of safety education as well as observation.
- d. Reveal weaknesses in the act and procedures.
- e. Motivate supervisors as well as employees giving good results.

4. Safety training

- a. Create understanding of what is required to work in a safe manner.
- b. Ensure proper training of job, procedure, methods, use of tools and learning from incidents.
- c. Ensure proper training of new employees, newly transferred employees as well as old employees taking up new work.
- d. Ensure periodic training for supervision as well as long service employees.
- e. Ensure training of Contractors.
- f. Arrange for class room, field as well as on-the-job training.
- g. Ensure training for every change in standards and procedures.
- h. Evaluate quality of training as well as assess the learner

5. Visual management

- a. Display KPI of the department.
- b. Display safety slogans and safety policy.
- c. Conduct safety celebration programmes and public recognition of employees giving good results.
- d. Ensure leadership participation in every safety programme.
- e. Organize panel discussion, skit, quiz, debate, etc.
- f. Ensure safety contact in each meeting



6. Incident investigation and learning from incidents

- a. Ensure that all incidents and near-misses are reported and investigated.
- b. Categorize incidents, depending on potential impact
- c. Ensure right team selection for investigation
- d. Identify and standardise methodology for investigation
- e. Explain that the objective is not to punish culprits but to improve upon safety rules to avoid repeat incidents.
- f. Ask right questions and drill down to root causes
- g. Take help of experts to make recommendations.
- h. Ensure that report is prepared and learning from incident is circulated.
- i. Communicate the action plan and its responsibility
- j. Identify KPI and monitor regularly

7. Motivation and discipline for safety

- a. No one wants to get injured but they take risk.
- b. Create climate of good safety performance by positive motivation.
- c. Prize, promotion, public recognition, chance to participate, challenge and approval for independent work are a few such examples.
- d. Demand safe performance, do not ignore unsafe act and take disciplinary action which is just and fair, appropriate, immediate and meaningful.

8. Ensure contractors' safety

- a. Contractor employees are selected by third party and organization does not have direct control.
- b. It is of humanitarian concern to treat them equally as employees.
- c. Specify complete condition in contract and check on safety knowledge level of contractor employees.
- d. Conduct training program for contractor employees too.
- e. Carry out tool box talk before start of the day.
- f. Organize regular orientation for contractor supervisor.
- g. Ensure contractor and plant management commitment for their safety.
- h. Ensure motivation of contractor employees in line with regular employees.

Reference:

1. Flynn: *Safety with Cryogenic Systems, Cryogenic Engineering, Second Edition Revised and Expanded, 2004.*



REGIONAL CENTRE ACTIVITIES

AMRAVATI REGIONAL CENTRE

A Seminar on 'Chemical Engineering – Journey Ahead' was organised on **24 February 2019**.

ANKLESHWAR REGIONAL CENTRE

Three students of the Department of Chemical Engineering, Pacific School of Engineering were presented **awards of merit** on **31 January 2019**.

Students with faculty members of SNPIT-Bardoli were taken on **Industry Visit** to **GNFC Plant**, Bharuch on **31 January 2019**.

A **Lecture** was delivered by Mr. Snehal Tralsawala on '**Safety Aspects in Chemical Industries**' on **2 February 2019**.

A **Seminar** on '**Innnovative Technologies in Chemical Industries**' was organised on **22, 23 February 2019**.

Industry Visits were arranged to **GNFC plants** for students of Chemical Engineering Department, SRICT-Valia on **26, 27 February 2019** and for students of P P Savani University on **2 March 2019**.

ANNAMALAI-NEYVELI REGIONAL CENTRE

A **Conference** on '**Challenges in Chemical Engineering and Biosciences for Sustainable Environment (CBSE)**' was organised on **15, 16 February 2019**.

Dr.K.V.Radha, A.C.College of Technology, Anna University and **Ms Sindhu Raveendran**, CSIR-NIIST, Trivandrum delivered



BHUBANESWAR REGIONAL CENTRE

A **Seminar**, titled, **Challenging Applications of Chemical Engineering (CACHÉ 2K19)**, was organised on **30 March 2019**.

CALCUTTA REGIONAL CENTRE

Prof. D.K. Dutta Memorial Lecture on 'Economic Fabric of the Society Depends on the University and Society' was delivered by **Dr. Ranjit Chakravorti**, founder President, TRS Consultant, USA, on **22 February 2019**.

In observation of the National Safety Week, a **Technical Programme** on the theme of '**Cultivate and Sustain a Safety Culture for Building Nation**' was organised on **2 March 2019**.



CHENNAI REGIONAL CENTRE

Shri T S Narayanaswami Memorial Lecture was delivered by Mr. S. Sunil Kumar, Business Director – South Asia, Helkel Adhesives Pvt. Ltd., on **8 March 2019**.

HYDERABAD REGIONAL CENTRE

A Lecture on ‘**Mixed Oxides and Nanocomposites as Recyclable Catalysts for Synthesis and Water Treatment**’ was delivered by **Dr. Sreekantha B. Jonnalagadda**, Senior Professor of Chemistry, University of KwaZulu – Natal, South Africa on **18 January 2019**.



A **Competition for Student Chapters** under Hyderabad RC was held on **16 February 2019**.

Dr. M. Ramakrishna, former Scientist, Indian Institute of Chemical Technology (IICT) delivered a **talk** on ‘**Chemical Engineering Vision – 2030**’.

A **Seminar** on ‘**Role of Chemical Engineers in Nation Building**’ was held on **21 February 2019**. Dr. Dinesh Srivastava, Chairman and Chief Executive of NFC was the Chief Guest. **Prof. P.R. Vasudeva Rao**, Vice Chancellor, Homi Bhabha National Institute, Mumbai; **Prof. S.V. Satyanarayana**, President, IChE and **Prof. P. De**, Past President, IChE were Guests of Honour, all of whom shared their thoughts on the topic.

KOCHI REGIONAL CENTRE

10th K. Unnikrishnan Memorial Lecture on ‘**Future of Energy in India – A Multi-dimensional Energy Hungry Economy**’ was delivered by Mr. Sasi Chemmenkottil, Chief Executive Officer, LPG Division, Total Oil India on **14 January 2019**. On the occasion, **Mr. A.R. Ajith Prasad**, Scientist / Engineer-SG, VSCC-ISRO and **Mrs Usha Unnikrishnan** were felicitated.

LOTE REGIONAL CENTRE

A **Lecture** on ‘**Process Safety**’ was organised for the Chemical Engineering students of Gharda Institute of Technology. Speakers were **Mr. K. Sahastranaman** and **Mr. Vijay Bhujale**, both experts from industries on **22 February 2019**.

A **Workshop** on ‘**Process Safety in Chemical Industry**’ was conducted on **23 February 2019**.



MUMBAI REGIONAL CENTRE

OYCE Blast Carbo / Thyssenkrupp Awards 2019 were given away on **30 March 2019**. Prizes, sponsored by Blast Carboblocks Pvt. Ltd. and Thyssenkrupp Industries India were given under 'UG category' and 'Working Official category', respectively. A panel discussion was also held on the occasion.

NORTHERN REGIONAL CENTRE

On the occasion of **Foundation Day**, two lectures were delivered, i.e., on '**Low Carbon Imperatives – Indian & Indian Oil's Initiatives**' and on '**Green and Clean Energy: Challenges and Opportunities**', respectively, by **Dr. SSV Ramakumar**, Director (R&D), Indian Oil Corporation Ltd., and by **Dr. Sanjeev S. Katti**, Director General, ONGC Energy Centre, on **19 January 2019**.

A **Seminar** was organised in collaboration with Lovraj Kumar Memorial Trust on '**Opportunities in Alternative Usage of Coal**' on **8 February 2019**. Speakers comprised **Mr. Thomas Mathew** (RIL); **Mr. Ajay Das** (Adani Synenergy); **Mr. A.N. Tiwari** (Jindal Steel & Power); **Dr. Alok Tripathy** (CSIR-IMMT); **Dr. Sanjeev S. Katti & Dr. Nimmi Singh** (ONGC Energy Centre); **Mr. P.N. Hajra** (Ex-ONGC) and **Mr. Devendra Prasad** (Coal India Ltd).



A **Seminar** under the central theme of '**Cutting-Edge Technologies**' was organised on **6 April 2019**. It was followed by '**Screening of Art - Music Digital AV Album 'Eureka'**' by **Mr. Uday Kulkarni**, a senior chemical engineer and an artist.

TRIVANDRUM REGIONAL CENTRE

A **Talk** was presented by **Dr Ajit Haridas**, Chief Scientist, NIIST, Trivandrum on '**Major issues of Pollution control in Kerala**' on **28 January 2019**. On the occasion, Dr. Haridas was also felicitated.



IICHe-CGG Panicker Gold Medal and **IICHe Mr Kurup Gold Medal** presentation function was held on **9 March 2019** for top rank holders in Chemical Engineering / Bio-technology & Bio-Chemical Engineering from colleges under Kerala Universities.

Industry-Institute interaction and **Industrial Conclave** on '**Scenario of Major Industries of Kerala to Meet Global Challenges**' was organized on **23 March 2019**.



STUDENT CHAPTER ACTIVITIES

ANURAG GROUP OF INSTITUTIONS, HYDERABAD

Industry Visits to Clair Engineers Pvt. Ltd., Hyderabad and National Remote Sensing Centre, Shadnagar were undertaken respectively on **9 January 2019** and **1 March 2019**.



Dr. Balaji Krishnamurthy, Associate Professor, Dept. of Chemical Engineering, BITS Pilani, Hyderabad delivered a **Lecture** on **12 March 2019** on ‘**Mathematical Modelling for Dissolution Kinetics of Lithium Ion Battery**’

Mr. G. Vijaya Kumar, Process Engineer and Senior Consultant, Invensys delivered a **Lecture** on ‘**Industrial Applications of Chemical Engineering**’ on **19 March 2019**.

JADAVPUR UNIVERSITY, KOLKATA

Innova 2019, the **Annual Technical Students’ Conclave**, was held on **30 March 2019**. Events included a competition on Technical Paper presentations, Chem-Innovation (presentation of ideas on Solid Waste Management) and Workshops on Process Simulation software ASPEN/UniSim.

PANDIT DEENDAYAL PETROLEUM UNIVERSITY, GANDHI NAGAR

A **Workshop** on ‘**Process Plant Design and Safety**’ was organised on **1 - 3 February 2019**.



Mr. Dipankar Karmakar, AGM, Linde Vadodara delivered a **Lecture** on ‘**Ethylene Technology**’ on **16 February 2019**.



Dr. Rashmi Valvekar, Associate Professor, Chemical Engineering, Taylors University, Malaysia delivered a **Lecture** on 'Research Advancement in Nano-science Technology' on **1 March 2019**.

Industry visits were organised respectively to Gujarat Alkalies and Chemicals Ltd., Vadodara and Reliance Industries Ltd., Vadodara on **6 February** and **19 March 2019**

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

ChEMSPARK-2019, A National level Technical Seminar was organised on **22 January 2019**.

Industry Institute Interaction Programme (IIIP) was held on **1 March 2019**. Prof. S. V. Satyanarayana, President, IChE was the Chief Guest on the occasion. Prof. Amitava Bandyopadhyay, Hony. Secretary, IChE and several other Council Members of IChE, namely, Mr. Praveen Saxena, (Coordinator IIIP, IChE); Mr. Ranga Rao Manduva, Joint Secretary, IChE; Mr. D. M. Butala, Vice-president, IChE; and, Prof. N. Balasubramanian, were present in the programme as eminent speakers.



Students went on an **Industry Visit** to Berger Paints Ltd. plant at Rishra near Kolkata on **27, 28 March 2019**

GURU GOVIND SINGH INDRAPRASTHA UNIVERSITY, NEW DELHI

Avishkaar, on-line post-making competition, was held on **4 January 2019**.

CHEM QUIZ and **CHEMESHAYARI** were organised on **6 February 2019**.

KLE DR. M. S. SHESHGIRI COLLEGE OF ENGINEERING AND TECHNOLOGY, BELAGAVI

A **Seminar** on '**Fuel Conservation**' was organised on **6 February 2019**.





Workshop on ‘Communicating to Connect’ was organised on **19 February 2019**.

2nd Year students went on an **Industry Visit** to **Nestle India Ltd.** Bicholim, Goa on **2 March 2019**.

Intercollegiate Essay Competition on ‘Engineering Innovations for a Better Tomorrow’ was held on **11 March 2019**.

Seminar on ‘Bayer’s Process, Utilization of Bauxite Residue in Cement Industries and Rehabilitation Bauxite Residue Dumping Sites’ was held on **12 March 2019**.

Symposium ALCHEMIST – 2019 on ‘New Thoughts in Chemical Engineering and Bio-Processing for Future Solutions’ was held in association with Bangalore RC on **20 March 2019**.

KONGUE ENGINEERING COLLEGE, PENDUDURAI

A **Seminar** on ‘Novel Materials Synthesis and Characterization Techniques’ was organised on **15 March 2019**.

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL

Swatch Bharat Abhiyaan was undertaken by Student Members of IIChE in and round Manipal lake on **10 February 2019**.



A **Workshop** on **Aspen Plus** was organised on **6, 7 April 2019**.

NATIONAL INSTITUTE OF TECHNOLOGY, RAIPUR

An **Aptitude Test** on GATE pattern was conducted for students of Chemical Engineering department on **30 January 2019**. Five out of 53 students were selected for award.

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

A **workshop** on ‘Bioenergy, Biofuels and Biorefinery’ will be held from **10 – 15 June 2019**.



S. N. PATEL INSTITUTE OF TECHNOLOGY AND RESEARCH CENTRE, UMRACH-BARDOLI

A **Seminar** on '**How to make an effective CV**' was organised for the 8th semester students on **29 January 2019**.

Students were taken on **Industry Visits** to Common Effluent Treatment Plant, Pandesara, Surat on **25 January 2019** and Gujarat Narmada Valley Fertilizer Company, Bharuch on **31 January 2019**



SARVAJANIK COLLEGE OF ENGINEERING AND TECHNOLOGY, SURAT

A **Workshop** on '**Reactor and Reactor Network Design**' was held on **15, 16 February 2019**.

VELLORE INSTITUTE OF TECHNOLOGY, VELLORE

PIC IT 2.0, a novel team-based competition, was organised for students on **9 January 2019**.

A **Lecture** on '**Human Factors in Petroleum Industries**' was delivered by **Mr. Fathi Al Jabri**, Senior Project HSE Advisor, Petroleum Development, Oman on **9 January 2019**.

A **Lecture** on '**Application of Process Control in Process and Allied Industries**' was delivered by **V. Nallasivam**, Asst. Manager, Emerson Process Management Chennai Pvt. Ltd., Chennai on **13 March 2019**.

Students went on an **industry visit** to Kothari Petrochemicals on **14 March 2019**.



A **Workshop** on **Aspen Plus** was held on **16 March 2019**.



SRI CHITRA THIRUNAL COLLEGE OF ENGINEERING, TRIVANDRUM

IIChE Student Chapter under Trivandrum Regional Centre was inaugurated at the Department of Biotechnology & Bio-Chemical Engineering at the College was on **9 March 2019**.

On the occasion, a **Seminar** was held on 'Applications of Chemical Engineering to Biotechnology and Societal Needs'.



Students went on **Industry Visits** to i. Common Effluent Treatment Plant, Pandesara, Surat on **25 January 2019** and to ii. GNFC (Gujarat Narmada Velly Fertilizer Company, Bharuch on **31 January 2019**.

A **National Conference, Equilibria**, was hosted under the theme 'Innovative and Sustainable Development in Biosciences and Technology' on **12, 13 April 2019**.

Announcement

♦ **Global Refining & Petrochemicals Congress 2019 (GRPC2019)** will be held on **17, 18 July 2019** at Le Meridien, New Delhi. IIChE is pleased to offer its support to the Organisers of GRPC2019 as a **Strategic Partner**.

The global refining and petrochemicals scenario is undergoing critical transformations and facing new challenges amidst important economic and political developments across different parts of the world. This fast changing scenario lends interesting dimensions for the participants to this year's Congress.

IIChE Members will be offered a discount of 10% for Delegate Registration.

For details, Members please visit the Conference **Website** at <http://www.refpet.com/>
Email: shalinder@itenmedia.in

♦ **2nd Indian Oil & Gas Chemistry Chemicals & Additives Conference & Exhibition (IOGCA 2019)** will be held on **16, 17 September 2019** at Courtyard by Marriot, Ahmedabad. IIChE is pleased to associate with IOGCA 2019 as a **Knowledge Partner**.

A special discount of 10% on the delegate fee will be offered to Members of IIChE.

Website: <http://www.oilfieldchemical.org/>
Email: conference@oilfieldchemical.org



Upcoming Events

ICAM 2019 International Conference on Advanced Materials

Date: 12 – 14 June 2019

Venue: Kuthuparamba Kerala, India

Organiser: Dept. of Physics, Nirmalagiri College, Kerala

Website: [http:// www.rsc.org/events/ detail/37053/ international-conference/--on-advanced- materials- icam2019](http://www.rsc.org/events/detail/37053/international-conference/--on-advanced-materials-icam2019)

Flow Chemistry India

Date: 12, 13 September 2019

Venue: Mumbai, India

Organiser: Select Biosciences Ltd.

Website: [http:// 10times.com/flow-chemistry-summit](http://10times.com/flow-chemistry-summit)

9th World Congress on Biopolymers & Bioplastics

Date: 26, 27 August, 2019

Venue: London, UK

Email: biopolymers@expertsmeeting.com

Website:

<http://www.conferenceseries.com/chemical-engineering-meetings>

18th Asia Pacific Confederation of Chemical Engineering Congress

Date: 23 – 27 September 2019

Venue: Sapporo, Japan

Organiser: 18th Asia Pacific Confederation of Chemical Engineering

Email: noda@waseda.jp

Website: <http://www.apcche2019.org/>

12th European Congress of Chemical Engineering

5th European Congress of Applied Biotechnology

Date: 5 – 9 September 2019

Venue: Florence, Italy

Contact: ECCE12 & ECAB5 Secretariat

Email: [ecce12_ ecab5@aidic.it](mailto:ecce12_ecab5@aidic.it)

Website: [http:// www. ecce12-ecab5. org/](http://www.ecce12-ecab5.org/)

SCHEMCON 2019

Date: 17, 18 October 2019

Venue: Ankleshwar, India

Organiser: IICChE Student Chapter, Shroff S R Rotary Institute of Chemical Technology, Ankleshwar, Gujarat

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