

AICHE MIT-WPU NEWSLETTER

Introduction

AICHE MIT-WPU Student Chapter was formed on 23rd December 2017 under the guidance of Prof. Datta B. Dandge. Our Student Chapter has been actively involved in various technical and non-technical events that are beneficial for the overall personality development and enhancement of technical and analytical problem-solving skills of the students.

AICHE MIT-WPU Student Chapter has a Chem-E-Car team where the team members acquire and refine their engineering skills to design an optimized car every year.



Student Chapter Significant Figures

14

AICHE Student Chapters in India

50

AICHE MIT-WPU Student Chapter members

MIT-WPU Student Panel



What Is AIChE

The American Institute of Chemical Engineers, established in 1908 is a professional organization representing nearly 60,000 members from over 110 countries worldwide. AIChE encourages students to think innovatively and conduct activities and works to integrate the student members into the professional world. It has the breadth of resources and expertise one needs.



AIChE holds a vision to become the Global Leader of chemical engineering profession and a lifetime centre for professional and personal growth, and security of chemical engineers.

It aims to promote excellence in chemical engineering education and global practice, uphold and advance the profession's standards, ethics and diversity and promote safety in every aspect of chemical engineering. Also, it works to enhance the lifelong career development and financial security of chemical engineers through products, services, networking, and advocacy.

Why Join AIChE

- AIChE is the global home of chemical engineers, so becoming a member develops your network among fellow chemical engineers and industry professionals.
- Students can also participate in different competitions including the Chem-E-Car Competition which allows them to apply concepts learned in the classrooms and earn safety achievement certificates through SChE.
- AIChE grants awards and scholarships to its members for excelling in various sectors.
- AIChE membership gives students their first professional credential, networking and mentorship opportunities, career services and valuable educational and technical resources.
- From process safety to fundamentals, biomanufacturing to solids handling, AIChE Academy delivers courses, presentations and videos that help students in increasing their interdisciplinary knowledge.



VIT - Regional Student Conference

The first AIChE Regional Student Conference in India was conducted by VIT, Vellore in 2018. It was a two day conference which brought together students from all over India to participate in various events, workshops, competitions which gave ample of opportunities for attendees to interact with professionals, AIChE leaders and dignitaries from numerous engineering specialties. 41 Students from MIT-WPU student chapter attended the RSC and participated in competitions like Chem-E-Jeopardy, Chem-E-Car, Chem-E-Safe, paper and poster presentation.

Highlighting the accomplishments of our students,

1. Chem-E-car team was awarded the 'Best innovative idea' award.
2. S. Dhiraj won the first prize in Chem-E-Safe and Second Prize in Chem-E-Jeopardy competition.
3. Rasika Mayalu won the first prize in Poster Presentation Competition.

Faculty of the Term



1. Name: Prof. (Dr.) Kiran D. Patil

2. Brief Profile:

Dr. Kiran Patil acquired Ph.D. in Chemical Engineering from University of Pune (2010). He has worked as a teacher, researcher and academic administrator in a professional career of 24 years. Currently he is working as Professor and Head, School of Chemical, Petroleum, Polymer Engineering at MIT-WPU, Pune.

3. Achievements:

Dr. Kiran Patil received the Ideal Teacher Award from MIT Group of Institutions (2009), Best Professor in Petroleum Engineering (2013) and Best Professor in Polymer Engineering (2017) and Best Professor in Chemical Engineering (2018) from BSA and Dewang Mehta Business School, Mumbai. He is on Advisory Panel of UPSC, New Delhi. Dr. Patil is also working as peer Team Member of NAAC, Bangalore. He received award, top 100 Engineers, International Biographical Centre, Cambridge, England (2011)

4. What industry needs from students?

An engineer must possess good communication skills, knowledge beyond the textbooks, positive approach, ability to lead, multitask, updated with latest trends in technology and last not but least is lifelong learning skills.

5. Special activities conducted for students:

Guest lectures, industrial visits, internships, mini-project and problem based learning, active learning practices and trekking activities.

6. Your vision for the department:

Our vision is to enhance our reputation as a world-class teaching and research institution, which is recognised for its innovation, excellence and discovery, and attracts the best students and staff worldwide.

Industrial Visit

DATE: AUGUST 7, 2018

Industrial visit was organised by the chemical department for AIChE Student Members. A batch of 60 students from second year visited the Rashtriya Chemicals & Fertilizers Ltd. (RCF), Chembur, Mumbai which is a Public Sector Undertaking (PSU) in India under the Ministry of Chemicals and Fertilizers of the Government of India. The Industrial visit was conducted exclusively for Chemical students was a great success. RCF is the fourth largest chemicals producer of fertilizers in India. Students visited various sections of Urea and Ammonia plant like boiler house, distillation column, condensers, and recovery unit. In addition to this students were briefed about the practical aspects of subjects like chemical technology, process calculations, mechanical operations, mass transfer which are a part of their regular curriculum.



Industrial Visit

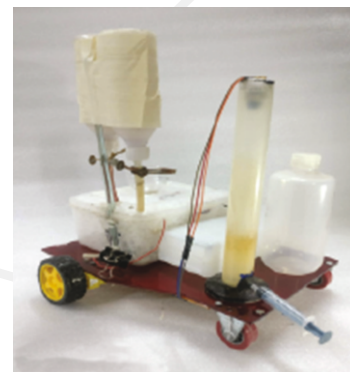
Date: September 21, 2018

Industrial visit was organized on 21st September 2018 for third year students to Privi Organic Ltd. In Mahad (Raigad), Maharashtra. Privi Organic is India's leading manufacturer, supplier and exporter of aroma and fragrance chemicals and a globally trusted partner and a preferred supplier of bulk aroma chemicals. Students were shown set ups of critical reactions like hydrogenation, condensation, Grignard reactions as well as unit operations like pyrolysis, reactive distillation, high vacuum distillation and continuous distillation which enhanced their practical knowledge.

Chem-E-Car

Chem-E-car is a student-driven team where the team members acquire and refine their engineering skills to design an optimized car every year which promotes creativity and teamwork in fellow members thereby enhancing their productivity to work on a project independently.

The EDP and poster of MIT-WPU AIChE Student Chapters' first Chem-E-Car, "Primous", were submitted for review as a part of the Chem-E-Car competition held by VIT, Vellore at the Student Regional Conference, 2018.



Consistency and dedication from the team towards the competition resulted into a fruitful story for the chapter that participated in this competition for the first time.

Chem-E-Car team won the Best Innovative Design Award and stood second in the Chem-E-Car poster presentation. This victory boosted up the energy and encouraged the team to go for something bigger.

Workshop

Conducted on : July 23, 2018

No. of participants : 45

A guest lecture was conducted by Pankaj Khandelwal, who is an industrialist and entrepreneur, which included discussion on Energy, Environment and Economics. Along with this, he gave information about various sectors where the Chemical Engineers can work, which included, Oil & Gas, Pharmaceutical, Distillery, Food Industry, Dyes & Pigments etc.

"If you look at a tree and think of it as a design assignment, it would be like asking you to make something that makes oxygen, sequesters carbon, fixes nitrogen, distills water, provides habitat for hundreds of species, accrues solar energy's fuel, makes complex sugars and food, changes colors with the seasons, creates microclimates and self-replicates"

~ William McDonough

Events And Activities



Football
10 sept 2018



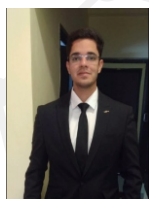
Chem-e-jeopardy
28 sept 2018



Cricket
23 oct 2018

Awards Section

We are proud to announce that MIT-WPU AICHE CHAPTER has won three major GLOBAL ANNUAL AWARDS



Ayush Mishra

One of the 8 winners all over the world who had won the International Leadership and Development Travel Grant Award. He attended the AICHE Annual Student conference in Pittsburgh



Chaitanya Kavale

Won the Sophomore Award for his outstanding performance in Academics



Purvi Ladha

From MIT-WPU SY. BTech won the Freshman Recognition Award

AICHE Global Undergraduate Student Video Competition



Every year AICHE organises a Global Undergraduate Student Video Competition where student teams use their imagination and creativity to make a 2-5 minute video that explains and inspires students to learn more about Chemical Engineering and what Chemical Engineers do. This Competition has a global reach which allows the exchange of relevant knowledge and ideas on process technology in different countries.

The topic for the year 2018 was "Chemical Engineering in Water Treatment". Each team competes to win the 'Judges Choice Award' or the 'Public Choice Award'. The winner is announced at the Annual Student Conference.

Team Octane comprising Students of TY Petrochemical Engineering of MIT, Pune participated in this Competition. A 5-minute video was made which explained the role of chemical engineering in water treatment by the process of cavitation. The team was led by Ketan Patil and the video was made under the guidance of faculty member Dr. Vikrant Gaikwad.

Video link

www.mitwpu.edu.in/students-deskmit-wpu/

www.youtube.com/watch?v=kEDf4Fow2l4

Independence Day



Date: August 15, 2018

The 72nd Independence Day of India was celebrated at MIT WPU by all the students, staff and faculty members with lots of enthusiasm. The Chief Guest of the event was Retired Admiral Vishnu Bhagwat (PVSM, AVSM), former Chief of Naval Staff, Indian Navy, former Additional DG, Defence Planning Staff. The event commenced with the flag hoisting and recitation of the National Anthem which was followed by a March Past by the NCC cadets of MIT WPU. We witnessed an apex of talent displayed by the students of MIT school who performed 'Lezim' with great energy and gusto. Soon after that, the students sang patriotic songs about the sacrifices of our Freedom fighters.

To sum it all up, this event was a successful and joyous conclusion to the Independence Day Celebrations.

Safety

Vacuum Hazards - Collapsed Tanks

Vacuum – It is Stronger Than You Think!



The tank collapsed because material was pumped out after somebody had covered the tank vent to atmosphere with a sheet of plastic. Who would ever think that a thin sheet of plastic would be stronger than a large storage tank? Large storage tanks are designed to withstand only a small amount of internal pressure and not vacuum. It is possible to collapse a large tank with a small amount of vacuum, and there are many reports of tanks being collapsed by something as simple as pumping material out while the tank vent is closed or rapid cooling of the tank vapor space from a thunder storm with a closed or blocked tank vent.

Safety measures-

- Inspect tank vents routinely for plugging when in fouling service.
- Never cover or block the atmospheric vent of an operating tank.
- Recognize that vents can be easily blocked by putting plastic bags over tank vents or other openings during maintenance or shutdowns to keep rain out of the tank, or to prevent debris from entering the tank. If you do this, make sure that you keep a list of all such covers and remove them before start-up.
- Be sure that the addition of air, nitrogen, or other vacuum breaking materials are not impeded.
- Vacuum relief devices must be inspected and tested on a regular basis. They are just as critical as pressure relief devices.

(Source- Process Safety Beacon by Centre for Chemical Process Safety (CCPS), an AIChE industry technology alliance)

Sister Chapter



As a part of methodized partnership between the two student chapters from different countries, on 24th September 2018, a video exchange was done with our sister chapter. The first video was a campus tour video, in which both the student chapters showed their respective campuses. On the other hand, on 28th September, the second video was an introductory video wherein all the student chapter panel members introduced themselves and stated their views for further upcoming events and maintaining the sisterhood. Also our chapter advisor Prof. D.B. Dandge and Head of Department Kiran Patil gave a brief insight of our student chapter and also expressed their vision.

Upcoming Trends in Chemical Engineering

Process Intensification

PROCESS INTENSIFICATION is a mind set to develop cleaner, safer and more energy efficient technology of Chemical and Biochemical Manufacturing by development and implementation of innovative equipment and processing methods. It has the potential of reducing energy usage, lowering equipment and shrinking the size of the required production facility. There are different approaches to synthesize an intensified process like Multifunctional reactors, Hybrid separations, Alternative energy sources and are based on methods from Process Synthesis and Process Optimization. Process Intensification is an optimization of process in Molecular level kinetic, Thermodynamics, and Heat and Mass transfer, Momentum transfer. Gernven and Stankiewicz provide four guiding principle for process intensification. An example of process intensification is methyl acetate production, by using reactive distillation process.

PROCESS INTENSIFICATION can be contemplated through the design and operations in reactors like Oscillatory Baffled Reactor and High Gas Separation technologies which are one the upcoming automation. However, it must be recognized that significant efforts are required to implement the Process Intensification methodology and validate the use of new technologies.

Know Your Element BORON (B)

Atomic Number: 5

Boron actually gets its name from Borax. Borax in turn gets its name from 'Buraq', which is an Arabic word. Buraq means white. The name "boron" reflects the similarity to its neighbour in the periodic table, carbon, and is derived from its source mineral "borax".

It is a key component of scientific glass wares. Borosilicate glass, having 13% boron trioxide, is a special high quality form of glass well known for its increased durability. And finally, a less practical – but more fun – use of borax is to make "Flubber"!

This is a great experiment to try with budding young scientists.

Upcoming Events

- Chemfie
- Aarush 2018
- National Study Tour
- Petro Show

Upcoming Plan



Our Student Chapter plans to form a K-12 Outreach programme which connects AIChE student volunteers to school students and encourages them in exploring variety of opportunities in Chemical engineering through interactive classes, experiments and demonstrations.

AIChE Important Links

www.aiche.org
www.aiche.org/academy
www.aiche.org/resources/elibrary
www.aiche.org/community/membership
www.aiche.org/search/site/esc
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