AMERICAN INSTITUTE OF CHEMICAL ENGINEERS AIChE

AIChe (American Institute of Chemical Engineers) is a worldwide platform created to distinguish chemical engineers from chemists and mechanical engineers which has now become a global home for chemical engineers. It is a nonprofit organization founded in 1908 with the mission to provide chemical engineers a platform for career development, advance the professions standard, ethics and provide them with products, services network and advocacy throughout the career.
AIChe is now the world leading chemical engineers society with more than 50,000 members till date. AIChE purpose is solely focused on chemical engineers, working across a wide-spectrum of specific fields that's why the society further divides into followingtechnical area taking in account the diversity and scope of chemical engineering:
1) Catalysis and Reaction Engineering Division (CRE)
2) Environmental Division (ENV)
3) Fuels & Petrochemicals Division (F&P)
4) Nuclear Engineering Division (NE)
5) Process Development Division (PD)
6) Safety & Health Division (S&H)
7) Separations Division (SEP)
8) Sustainable Engineering Forum (SEF)
9) Education Division (EDU)
10) Food, Pharmaceutical & Bioengineering Division (FP&BE)
And others

AIChe keeps chemical engineers updated with changes in chemical industries and about the latest research through their monthly issue of CEP (Chemical Engineering Progress) magazine. It provides information that can be practically applied to current or future projects. AIChE also publishes books in partnerships with John Wiley & Sons such as the AIChE Journal, Bioengineering & Translational Medicine, Biotechnology Progress, Environmental Progress & Sustainable Energy, and Process Safety Progress.
AIChE offers its members a wide array of services and resources—information, career, professional connections, education, recognition, savings, and personal benefits
AIChe offers the following membership grades:
1) Fellow 2) Senior Member 3) Member 4) Student member
The student grade is for undergraduate students and is free of cost!By becoming a student member you have free access to the latest technologies and trends in mature and cutting-edge industries and access to:
1) SAChE (Safety and Chemical Engineering Education) Safety Certification
2) AIChE e-Library
3) Online Publications
4) AIChE Academy
You can stay connected with industry experts, young professionals, AIChE leaders and other student engineers through:
• Conferences • Competitions • Internships • Career Engineer • ChEnected Blog and Social Media • AIChE Engage • Local Sections • Virtual Local Section • Divisions and Forums• Industry Technology Groups
AIChE also provides scholarships and awards are valued at more than $50,000 (USD).

SOFTWARE

ASPEN PLUS/ HYSYS

In chemical engineering there is no substitute for simulation. If an engineer wants to design or optimize a chemical system or process,he or she must have to simulate the process in order to prove that their proposed process is practically possible to implement and cost effective or not.

aspentech

MATLAB

MATLAB is great software used for modeling. It should be kept in mind that there is major difference between modelling and simulation. It is used for solving different equations including ordinary differential equations and partial differential equations. It solves matrices and plot functions and implements algorithms.
It is also one of the most famous software that is used in all disciplines of engineering. Around 1 million people were using matlab in 2004.

KORF HYDRAULLICS

It is a simple and user friendly software used for finding unknown pressure, flow rates and sizing of pump and compressors

HTRI XCHANGER SUITE

Heat Transfer Research Incorporation Xchanger Suite software is used for sizing of heat exchangers and coolers including thermal design of shell and tube heat exchangers, economizers, fired heaters, heat transfer bundles and others

MS Excel

It is said that excel is the most used software in engineering. Besides making balance sheets and graphs this powerfulsoftware can solve nonlinear and ordinary differential equationsusing
Runge Kutte method. It can also be used for regression and fitting data, interpolate data and perform energy and mass balances.

Microsoft Excel

LINK
NEWSLETTER
ISSUE 02

Chemical Engineering Department
NED University of Engg. & Tech

SCHEME
SOCIETY OF CHEMICAL ENGINEERS

A LOOK INTO VP'S CAREER

Team SCHEME got an opportunity to interview the Vice President manufacturing of one of the most prestigious firm, Engro polymer and chemicals, Mr. Jhangir Waheed.
Team SCHEME inquired about queries of most chemical engineers and problem that are faced by fresh graduates.

Please tell us about your education and experience?
I graduated in 1983 as chemical engineer from UET Lahore. I did my masters in control theory from King Fahad University of Petroleum And Minerals and specialization in industrial control. As far my experience is concerned I started with National Fertilizer Corporation (NFC) long time ago and then joined SABIC Fertilizer (SAFCO) in Saudia Arabia. For the last 20 years I have been working with Engro Group. First I joined engro fertilizer and there I worked as a senior engineer for 14 years at Dehrki plant, from there I shifted to Engro project of Thar Coal Mining atthat time it was under Engro power gen and for the last 5 years I am in Engro Polymers and Chemicals Limited currently holding that position of V.P manufacturing.

what qualities do you usually seek in fresh engineers those are hired as graduate trainees?
I seek energetic, motivated, confident individuals with some ambitions.They should have sharp presenting skills and should be involved in co-curricular activities. He/she should also be a team player and knows how to build relationships.

Do you think soft skills and leadership qualities are important for engineers?
Yes, as mentioned before, these qualities are very important, along with technical knowledge, of course.

Your advice for young engineers?
My advice is to study in depth. Try to clear concepts and don't cramp.Also maintain their GPA's. They don't have to be topper but should be above average in order to survive in this competitive world.

NEWSLETTER TEAM

EDITOR IN CHIEF
Muhammad Noman Raza

DIRECTOR
Tooba Ahmed

PUBLISHING HEAD
Christopher Ernest

EDITOR
John Samuel Dean
Hira Yousuf

Future plans of Engro?
Engro has many companies under its umbrella. Currently we are increasing 15% of our production of PVC and then we may install a parallel plant. Also CPEC is underwayand every company is trying to grab theopportunity it sees.

Do you have any role models?
My role model is AsadUmer. I worked under him. He has great leadership skills and is a good person.

Any situation of pressure and crisis in professional life? How you handled that? Please share
During the extension of one billion dollars' worth of the plant at Dharki, keeping it working was a challenging task as it was our only source ofcapital.

Please share with us your struggles and difficulties that you have faced to come this way up?
I was a literal entry. But we have to make our way up to the post. Consistency is very important. Some people keep on changing firm for small benefits they can't reach the top.

Three important lessons you have learnt in life? How can we learn from them?
Never give up on your goals. If you have to take risk ,don't be shy. Because higher the risk, bigger the gain. If you see any opportunity, grab it.

IN THIS ISSUE

WEBSITE LAUNCH

Scheme has decided to launch their website with the domain *www.teamscheme.org.* The website contains a digital library and an open forum where students can ask online questions and coordinate with their teachers as well. As SCHEME is spreading all over the university day by day,upcoming events will also be announced on the website so that the students of NED University can be informed easily .This initiative has been taken by Team SCHEME this year, in an effort to help students both with curricular and extra-curricular activities.

PRODIGY

On January 18th, 19th, and 20th, SCHEME held its inter-departmental sports and gaming event, called Prodigy. Prodigy was a successful venture into finding some of the best gamers and some of the best sportsmen that NED has ever seen through

FIFA and Counter Strike battles, as well as through futsal tournaments. An event replete with photographers, props, careful backdrops, interviewers and winners as interviewees. Prodigy was a one-of-a-kind event, where skill and enjoy ment intermingled through the efforts of every single person included in Team SCHEME

FIXTRESS 2.0

After great success of “Fixtress - leave the dismay and seize the day” in 2014, SCHEME is bringing you Fixtress 2.0 in May 2017 - a fun filled event with dramatic plays and motivational speakers! Catch a break and stay tuned!

FINAL YEAR PROJECTS

CO2 Conversion into Different Hydrocarbons

The increasing CO2 concentration in the atmosphere is one of the largest contributing factors to global warming and as such, there is currently an increasing pressure on countries and industry to reduce CO2 emissions. Atmospheric CO2 levels are rising rapidly, recently passing the symbolic 400 ppm level and are set to continue to rise. The possibility of considering CO2 as a valuable chemical feedstock rather than a waste product is consequently becoming increasingly attractive as an example of the circular economy.This process has great scope all over the world, as global warming is a crucial issue to resolve, and every country is trying to control it and minimize it. Increasing CO2 concentration is one of the main causes of global warming and it is utilized as the main reactant in this process.The purpose of this process is to:

1) control& slow down the rising level of CO2 in the planet
2) control global warming
3)provide an alternative to fossil fuel production alternative to other fuel production methods. Different hydrocarbons can be produced by converting CO2 into CO by Reverse Water Shift reaction and then converting CO into desired hydrocarbons by Fisher Tropsch Reaction. The use of a suitable catalyst is of extreme importance, as the catalyst produces a large variety of hydrocarbons using the same conditions.

Written by: Noman Raza

AIR WATER GENERATOR

Atmospheric water generator (AWG) is a device which can generate water from the atmosphere. AWG can provide drinkable water for such areas where drinkable water is not easily available.

Process of Atmospheric water generator.

Humid air will pass through the specifically designed nozzle (or pipe) which will reduce the air temperature to its dew point. In order to remove the maximum water content from air, an aluminium mesh is added to increase surface area, giving water molecules a nucleation point to form droplets and accumulate at the bottom. The air ejected is nearly completely dry.

To reduce the temperature of the nozzle or pipe, compression refrigeration cycle will be used for the project. In order to make the water potable, collected water will pass through a filtration unit.

Application of the model:

The foot-steps walked to drink water taken by the people in the interior Sindh on a single day is incomparably more than the steps taken by people in more advanced, urban areas to drink water in three days. This incites us to minimize their efforts by providing this model that is designed especially for places which are hot and humid. Atmospheric water generators are suitable for community, military, government, and institutional use, and also can be fitted for mobile deployment

Written by: Shaheer Yousuf

INTERNSHIP EXPERIENCES

Internships are the best way to improve professional skills, whereby one learns how to improve oneself. I did my summer intern at Byco Oil Refinery. In Byco Oil Refinery, crude oil is refined into respective fractional products. I learned handling, storage and transportation of crude oil and the different fractional products obtained through distillation. The best thing about Byco is the facilities they provide.

Ali Haider BE Chemical

I find myself lucky to get an opportunity to work with a team of highly skilled professionals of Thar power limited (HUBCO). During my stay, I got to learn a lot about coal power project and its different phases. We as chemical engineers must broaden our vision and try to learn the built of other fields instead of restricting ourselves to learn pure chemical engineering. Creating an understanding of other fields like control and instrumentation etc. is important to become one successful engineer who foresees things for the advancement of future industries which are safer and more efficient.

Eleyyen Soomro BE Chemical

An internship is the best way to learn professional skill and see the practical application of theoretical subject. Interning at Pak Oasis, where they design reverse osmosis (R.O) and ultra-filtration plants. The best thing of Pak Oasis is its environment and its employees, who are always ready to guide you in the best possible way. I had the opportunity of working in both designing and process at Pak oasis plant installed at different part of Karachi for purification of water.

Hammed Ullah BE Chemical