



School of Chemical Engineering

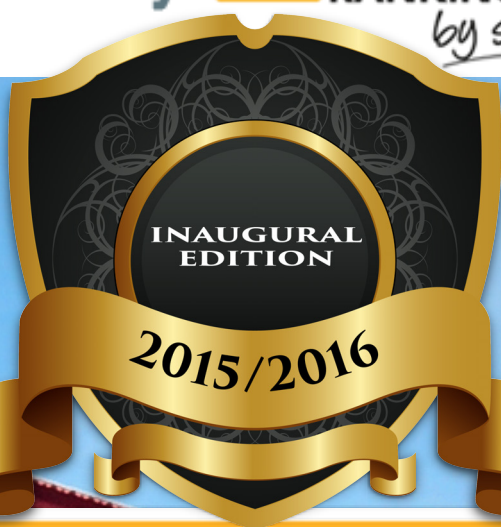
We are ranked **#38** in the world by



**WORLD  
UNIVERSITY  
RANKINGS**

*by subject*

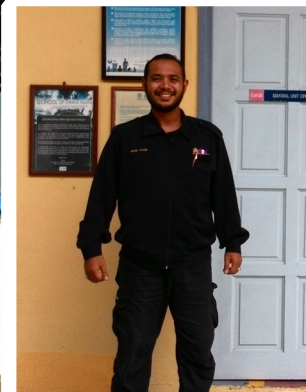
# CEON



**CHEMICAL ENGINEERING OFFICIAL NEWSLETTER**

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# The Dean's Note

This is the Inaugural Edition of Chemical Engineering School Newsletter, a big congratulation to the editorial board! Kudos to the editorial board for their relentless effort in making sure this maiden edition is published despite their busy study schedule.

This is a special year for the School of Chemical Engineering USM as it is celebrating its silver jubilee anniversary. Having established in May 1992, the School has gone through several phases in the 25 years journey and has been reaping the rewards in many ways, Alhamdulillah. Currently, we are ranked 38 in the 2017 QS Chemical Engineering by Subject Ranking. This is the third time the School of Chemical Engineering USM has been placed under the top 50 rank category. It has been my pleasure and privilege to be entrusted with the responsibility as the dean to lead the school since 2010. I would like to take this opportunity to thank all 'citizens' of the School of Chemical Engineering for their contributions in whatever capacity big or small in building the reputation of the School.



A note to our young undergraduates, the aspiring chemical engineers-to-be, there are no shortcuts to success. You will always need perseverance and resilience to rise to the challenges given to you during your university life and thereafter. Becoming a chemical engineer means that you need to develop the following attributes:

- |   |                                     |
|---|-------------------------------------|
| • Sharp brain that accumulates knowledge          | <i>(Engineering Knowledge)</i>      |
| • Hawk eyes to analyse problems                   | <i>(Problem Analysis)</i>           |
| • Creative ways to solve problem                  | <i>(Design)</i>                     |
| • Curious mind for doing research                 | <i>(Investigation)</i>              |
| • Expert fingers to use computer software         | <i>(Modern Tool Usage)</i>          |
| • Skilful hands in managing project               | <i>(Project Management)</i>         |
| • Affectionate heart to contribute to the society | <i>(The Engineer &amp; Society)</i> |
| • Loving soul to the environment                  | <i>(Environment Sustainability)</i> |
| • High in moral principles                        | <i>(Ethics)</i>                     |
| • Tongue that knows how to convey the message     | <i>(Communication)</i>              |
| • Spirit of teamwork                              | <i>(Individual &amp; Team Work)</i> |
| • The will to always learn new things             | <i>(Life Long Learning)</i>         |

The School of Chemical Engineering believes that you will develop these attributes upon the completion of the degree program offered by us and we are confident our engineering graduates will receive proper engineering training and education to fulfil these expectations. Make us proud of you!

Professor Dr. Azlina Binti Harun @ Kamaruddin,  
Dean of the School of Chemical Engineering,  
Universiti Sains Malaysia.

# The Editor's Note

Hi everyone,

Welcome to the inaugural edition of Chemical Engineering Official Newsletter. It is truly an honour to be the first editor of this publication. Thank you to those who have contributed to this production as these contributions is essential to the newsletter's success.

Our main idea of publishing this newsletter is to create a link between the postgraduates, undergraduates, staff and alumni of this school. Apart from this, the newsletter aims to reach out to as many young aspiring engineers as possible who intend to pursue their education in this field. As students, my team and I have carefully structured this newsletter to promote our school in the global arena by including our school's events and achievements. As of this year, our school has attained a new QS ranking of 38 and this has set a new benchmark to all the universities in Malaysia. I am truly proud of our school as their advancement in research has enabled us to shine over others. This newsletter is equipped with concise yet comprehensive news and pictures of Chemical Engineering School whereabouts.

Please feel free to share any comments, suggestions or new ideas for future editions. We are all very interested in hearing from Chemical Engineering School Alumni from all over the world.

All the best to our school in the years to come and here is just a motto from my idol which I would like to share, it goes "Believe the unbelievable. Dream the impossible. Never take 'NO' for an answer" - **Tony Fernandes**.

Best regards and easy reading.

Kirthan Yogan,  
Editor of CEON.  
*kirthan.editorial@gmail.com*



# Chemical Engineering School Events

The School of Chemical Engineering holds a number of activities year in year out. Some of them are highlighted below.

## 2015/2016 School Level Chem E-Car Competition



Universiti Sains Malaysia (USM) Chem-E-Car Competition of the 2015/2016 session attracted teams comprising of students from Year One to Year Three of the Chemical Engineering School undergraduates. The annual competition of the Chemical Engineering School is organised by a group of undergraduate students whom are active members of the Chemical Engineering Student Society (ChESS). The objective of the competition is mainly to promote the use of sustainable energy as an alternative fuel which acts as a substitute or replacement to the conventional petroleum-based fuel. Each team

is required to design and power up their vehicles using sustainable chemical cells together with the stopping module in order to allow the vehicle to stop at certain distances while carrying a load of water. The overall champion will be sent to compete in the National Level Competition along with the teams from other respected universities.



## 2016 National Level Chem E-Car Competition

The annual National Chem E-Car 2016 competition took place in University Putra Malaysia, Serdang, Selangor. This prestigious event was held inside the campus where a myriad and a diversity of universities were able to join and compete. Our very own Chemical Engineering School from USM sent three teams as representatives who competed amongst students in USM and were chosen as the best of the lot. This national competition provided good exposure to the students as the objective of the competition yearly is to encourage the usage of sustainable and renewable energy as an alternative fuel which acts as a substitute to the conventional petroleum-based fuel. As from the previous competitions, the rules and regulations were the same which required the teams to design and power up their model cars using sustainable chemical cells together with the stopping modules in order to allow the model to stop at certain distances while carrying a designated load. Thence, the winner of this competition will then be participating in the International Chem E-Car competition, which will be joined by a group of renowned universities around the world.





## 2015/2016 ChESS Family Day

The Chemical Engineering Students Society, ChESS together with the School of Chemical Engineering, organised the Family Day, an annual carnival that integrates both the School of Chemical Engineering staff and students of all levels. Usually, the carnival starts a week earlier to hold outdoor competitions such as badminton, futsal and netball and is received with warm participation from students of Year One to Year Four. The Carnival's main aim is to promote a strong bond between students of all years and also the staff of our school. It is a platform where students and staff including even the Dean get down on the field to have fun and interact with each other. It's a day full of wonderful games and laughter that makes all forget about the hectic and stressful weekdays.

## 2015/2016 Chemical Night



Chemical Night on the other hand is an annual dinner organised by the School of Chemical Engineering mainly to congratulate and honour the fourth year students on their success and achievements throughout their four years of Chemical Engineering. It is a fun-filled night with performances, achievement awards and amazing food. This year, the dinner was held at Grand Ballroom of Bukit Jawi Golf Resort. The students were excited and enjoyed their moments at the annual dinner. The senior students were celebrated upon the graduation that was yet to come in November. Junior students wished their seniors bon voyage for their new adventure in their working world.



# The Undergraduates



Abdulaziz Abdulwahid

Ahmad Nasrul Azwan

Arsyad Asyraf

Aziatul Atika

Chin Jing Yi

Devaraja Jegathisan

Hazlein Syuhada

Jamilah

Jasvinderjit Singh

Joan Mary

Johan Indera Putra

Kalai Yoogan

Kalaivani Rangasamy

Kesavan Mutayah

Kethis Selvabala

Kevin Wong Yeh Tah

Khairunnisa Aina

Khairunnisa

Kirtaan Kumar

Kirthan Yogan

Lee Jing Yi

Lee Yong Xin

Liau Xin Jie

Liew Jia Hong

Mohamad Amir Hafizi

Mohamad Hafiz

Mohamad Hidayat

Mohamad Syarul

Mohammad Shaniy Shafiy

Mohd Iskandar

Muhamad Rizwan

Muhamad Syazwan

Muhammad Hazim

Muhammad Shafizruddin

Muhammad Syafiq

Munira Jefry

Murshid Yaacob

Muthu Kumar

Nabilah

Nadzirah

Noor Fadzleena

Nor Syahira

Nur Aisyah

Nur Amelia

Nur Amni

Nur Athirah

Nur Azian

Nur Hidanah

Nur Najwa Syazwani

Nur Nazatul Alya

Nur Nazatul Asyikin

Nur Syafiqah Nasrin

Nur Syazwani

Nur Zalikha Syamimi

Nurhafiza Natasha

Nurhamin Salwa

Nurin Dianah

Nursyafika

Nurul Abiha

Nurul Afini

Nurul Aini

Nurul Atikah

Nurul Syafinaz

Nurulamilina

Rajaviknesswaran

Shahrizat Marwan

Sharmaine

Sherrine Aruldass

Siti Najeeha

Sivasangary Ragupathy

Surcharen Liew Chun Lee

Tan Hoi Fang

Tan Why Ling

Thineswaran Subramaniam

Ummi Salamiah

Wan Mohd Haffizrul

Yew Keat Yen

Yuveraj Thanasagaran

Zahira

**'The Freshmen'**



YEAR 2



Abdul Aziz	Kisheelah Rakavan	Navin Kumar	Sathiswaran Sangaran
Ahmad Arif Aiman	Kok Joe Ye	Nawal Auni	Shanthini Gobi
Ahmad Zaki	Lavanyha Guru Balan	Nazatul Shima	Sharon Ding Tiew Kui
Aidil Faizie	Low Pui San	Ng Wei Ling	Siti Mariam
Aisyah	Melvin Raj	Ng Won Huei	Siti Umiyah
Amin Amali	Mohaaneesh Nagarajah	Ng Zhi Heng	Suthasheny Perumal
Anis Salwani	Mohamad Fikri	Noor Nadhirah	Syed Hussaini
Chan Hui Yee	Mohamad Muhaimin	Nur Allia	Tan Pei Chin
Chan Zi Ying	Mohamad Razif	Nur Fauzana	Tan Wern Ke
Chew Jian Yee	Mohd Ridzwan	Nur Husni	Teng Siong Lim
Elysia Chiang Chern Yuen	Muhammad Akmal	Nur Syahirah	Teng Xiau Jeong
Engku Mohamad	Muhammad Azwar Hafify	Nursyarinie Nabihah	Thayasree Kaliappan
Fakhira Huda	Muhammad Hanafi	Nurul Athira	Vinessa Mathivanan
Fatima Zahara	Muhammad Imran Afifi	Nurul Haznie Khussna	Vinodini Kandasamy
Hairiady	Muhammad Nur Ramadhan	Nurul Izzati	Yiauw Diing Ye
Haslina Shamsuddin Jaya	Muhammad Ridhwaan	Nurul Syazliza	
Illya Syafiqah	Muhd Aqram Zaki	Ong Hoay Yee	
Jahira Alias	Muliati	Ong Yi Qian	
Jayasree Sugumaran	Munesh Daniel	Rosmaliza Zuraida	
Joanna Jayamalar	Navenprasath	Saravanan Reddy	

'The Half-Baked'





YEAR 3

Aizat Aminuddin

Ali Hassan

Amira Aziema

Amirul Haim

Anis Farhain

Azahirah Azhari

Chong Ching Yang

Chong Mei Yan

Dharishaan Vengadesan

Dinesh Kumar Muniandy

Durrah Faiqah

Fatin Nur Liyana

Florence Chan

Gopal Kananiyan

Gopinathan Subramaniam

Harivindran Asokan

Khairunisa Hat

Kishor Kumar Murugan

Kuak Li Ming

Lee Shu Xian

Leong Wei Cong

Lim Anne Lee

Lim Siow Yoke

Loh Woei Fang

Low Kok Wei

Mohamad Alif

Mohamad Fadzli

Mohamad Farhan

Mohamad Shaik Afiq

Mohammad Amirul Asyraf

Mohammad Ashraf

Mohammad Fareew Adam

Mohammad Hafeez

Mohd Shafiq

Muammar Haqimi

Muhamad Shaifol

Muhammad Akmal

Muhammad Ismathanif

Muhammad Zuber

Nabilah Saafie

Nanthini Umapathy

Neoh Sun Hao

Ng Shyi Sean

Ng Kai Jun

Noor Syaza

Nor Adibah

Nor Azlinda

Nor Ezaney

Norshahirah Adinna

Nur Aqilah

Nur Asmira

Nur Aziah

Nur Fatihah

Nur Fatin Syahira

Nur Faziera Natasha

Nur Hafizah

Nur Hasniena

Nur Izzati

Nur Zaherra

Nurkhairil Azhar

Nurul Aina

Nurul Husna Elyanna

Pang Wen Yu

Pavinthran Maran

Priyaa Darshinie

Sathiswaran Selvam

Siti Khairunnisa

Siti Nurul Khairaimi

Siva-Sree-Hari

Tai Ming Li

Tan Chee Yeang

Tan Chee Yeang

Tan Ying Shiean

Tavayogeshwary

Tengku Nur Amalina

Tharveen Raj

'One year to go.'



FINAL YEARS



A HEARTY **CONGRATULATIONS** TO ALL THE  
FINAL YEARS ON GRADUATING. JOB WELL DONE  
EVERYBODY! 🎉🎊🎈📺

Ahmad Fuzamy	Kong Wei Qing	Muhammad Syafieq	Selventhiran Dasarataan
Ahmad Ridhwan	Lau Boon Key	Ng Sok Yeng	Siew Seok Li
Chan Chuh Yiing	Law Li Chin	Noor Izzatty Shamira	Siti Natasha
Chan Pei Juan	Lee Lye Qing	Noratasya	Siti Norhasliza
Chin Wai Sing	Lee Wen Jie	Nur Amirah Hani	Siti Nur Fazura
Chin Zhi Yan	Liew San Siang	Nur Dina Zaulkiflee	Siti Zubaidah
Chong Yu Nong	Lim Wei Mei	Nur Hajar	Soon Kah Aik
Chow Lily	Lim Zhi Huei	Nur Munirah Aqma	Syafiqah
Dhivian Nithiaselvan	Loh Kar Woon	Nur Syahirah Adibah	Syahazmir
Dina Liyana	Lye Yu Yang	Nurlina Gafoor	Syed Zulfadli
Ekmal Harris	Maryam Munirah	Nurul 'Aqilah	Syuib Ameer
Elaine Ooi Chin Wen	Mohamad Azzam	Nurul Azrin	Parrimalan Thiruchelvan
Eu Kean Wei	Mohamed Fadhil	Nurul Ezati	Tan Jun Ying
Eza Edayu	Mohammad Hasif	Nurul Farhana	Tan Yee Ling
Goh Seng Shi	Mohd Khairi	Nurul Fatirah	Teo Leong Her
Hasif Mior Hakim	Muhamad Hafeedz	Ong Hui Sin	Thien Yu Jie
Kavitrta Rajendram	Muhamad Nu'aim	Ooi Zi Shing	Tong Siew Hui
Kee Li En	Muhamad Sharafee	Paveethra Bhai	Vasyanthan Pandiyan
Koh Ming Hooi	Muhammad Aswar	Quah Jia Xin	Wong Hui Yin
Kong Ka Man	Muhammad Hazwan	Rasyid Hassan	Wong Win Yee

'Out you go!'



Assalamualaikum w.b.t. I'm Muhammad Hazim Bin Mohd Fauzi, the class representative for first year students of School of Chemical Engineering, USM. What I can see is that our school has done a lot of amazing practices for the students to become a successful engineer. Besides, the lecturers work so hard to make sure that the students understand the theories and fundamentals that are much required in the industry. It's an honour actually, to study in the School of Chemical Engineering, USM.

**Muhammad Hazim Bin Mohd Fauzi,**  
Year 1 Class Representative.

## BATCH REPRESENTATIVE NOTE

Firstly, I would like to congratulate the committee that is involved in publishing this newsletter. I also would like to thank them for giving me this opportunity to share some of my words. It has almost been 3 years since I first stepped foot into this university. Before I entered, I made a promise to myself that I would build my interpersonal skills, leadership skills and excel in my studies. Today, I am proud to say that I am definitely on the right track to achieve my goals. This would not be possible without the support of my family, lecturers and friends. My time here in USM, especially as a student of the School of Chemical Engineering, has been meaningful thanks to them. I wish everyone all the best in their future endeavours and keep soaring upwards!



**Muhd. Aqram Zaki Bin Manzur,**  
Year 2 Class Representative.



I would like to first acknowledge the committee of the editorial board for their effort in producing this inaugural edition of the School of Chemical Engineering newsletter. A big thank you for providing me the platform to express words. It has been an honour and privilege to be a part of the School of Chemical Engineering for the past four years. As a batch, we've truly served the purpose of learning and acquiring knowledge fundamental to the very needs of the real and industrial world. A huge shout out to the lecturers, technical and academic staffs for their hands in paving the roads for our journey towards graduation. Every moment in this school will forever be cherished. To the future

Chemical Engineers and upcoming students, all the best. Never forget to always strive forwards! Cheers!

**Aizat Mohd. Aminuddin,**  
Year 3 Class Representative.



# Voice of The Graduates

“My life in USM has been incredible as it has shaped me up to be an all-rounder, which is important in the current industry right now. The Chemical Engineering programme provides us the base of all fundamentals in theory and practical. The extra skills adopted from various activities organised is actually one of the key factors of fresh graduates being employed. They enhance our skills to be more outgoing in which the industry is looking for.”

**Dhivian T.Nithiaselvan**, employee of *Teleflex Medical Sdn. Bhd.*

“USM taught me to not only do well in my studies but also to improve on my social skills. I improved my presentation and communication skills in USM which really helped me in my working life. Life was also a lot of fun in School of Chemical Engineering, USM as I had awesome batch mates and amazing lecturers that made my life here a very enjoyable one.”

**Kavitrra Rajendram**, employee of *Biocon Sdn. Bhd.*

“My university experiences have been amazing. I have learned and experienced so many new things in such a short period of time. I also made lots of friends and memories that are irreplaceable. People may say things about girl taking engineering and so on, but forget about those discouraging words and just live your life. It feels right in so many ways.”

**Nur Dina Binti Zaulkiflee**, School of Chemical Engineering Postgraduate.

“Awesome, great memories and a wonderful time in School of Chemical Engineering, USM. You will miss the moments in class, including the learning and the fun. Whatever situations we have gone through, it is the great memories that can't be replaced!”

**Nur Syahirah Adibah Binti Pakir**, employee of *Hicom Teck See Manufacturing (M) Sdn. Bhd.*

“I would like to thank USM because I learnt a lot of things here. Other than the equations, laws, theories & principals, I also got to know how to live a different life after meeting a bunch of friends from different backgrounds, personalities and cultures. Appreciate and enjoy your university life while you still have the chance. Most importantly, respect and listen to your lecturers. They will teach you to survive and succeed.”

**Soon Kah Aik**, employee of *Toray Plastics Malaysia.*





# OUTSIDE THE CLASSROOM.

USM has been a dream of mine since my schooling days and so was engineering. Engineering is not just about how to apply the theory into real life, it also taught me that we must consider all possible outcomes when taking a decision. After coming into USM I have become more independent. I would definitely continue my career in engineering no matter how hard it seems to be. It was my first choice and it will be always my choice. The time I spent with friends and life as a student will be missed most after graduation. The best about chemical school is the willingness of lecturers who share their experiences and knowledge but the Wi-Fi in the lecture halls are too good that they sometimes distract me from concentrating in class. One of the best lessons I've learnt here so far is that just because everyone is doing something that is wrong, it doesn't mean that it is the right thing to do. Cheers!



***Tan Pei Chin, Year 2***



My aunt is from USM and she is doing well in her career now. Hence, she became my inspiration to follow her footsteps to join this prestigious university. Engineering is my first choice because there is no other better choice in my life at that moment. As for now I can just say certain decisions are made for a reason and others for a season. Probably engineering is my seasonal decision because at times I feel like I don't belong here. I'm an engineer by profession but a football player by passion. If I get a better chance to excel in my passion, I would rather choose my passion over profession. My best experience would be with the lab technicians because they have helped and taught me a lot during my national Chem E-car competition and the worst memory was when I met with an accident in lab during my second year. I'll miss every single moment in USM that I cherish the most. And a piece of advice, never study last minute. Hehe!

***Navenprasath Sandrasegaran, Year 2***

‘My boss told me to have a good day,  
so I went home.’







There have been ups and downs in my life over here. I struggled to adjust with the new environment and people. However, I embraced the challenges as I went through because it has given me a glimpse of the real world out

*"I embraced the challenges as I went through because it has given me a glimpse of the real world out there."*

there. I am active in several clubs and have gained valuable experiences. I have wonderful friends and inspiring lecturers. I wouldn't trade my life here for anything. All is well!

**Sivasangary Ragupathy, Year 1**



As a Chemical Engineering student in USM, it is not an easy thing to handle as the higher we go, the harder it will be. In this course, we need to know many things in terms of calculation and explanation. My greatest experience when I was in my Second Year. That time, I was in the Organic Chemistry Laboratory handling the reaction of methanol when suddenly a huge flame appeared. Another such experience occurred when I was dealing with chemical reagents such as toluene and benzene. Somehow, it gave me lots of experience and knowledge. In this course, although it's called Chemical Engineering, we don't deal with just Chemistry. Chemical Engineering is a branch of engineering that applies physical sciences, together with mathematics and economics to produce, transform, transport and properly use chemicals as well as energy. I would like to wish each and everyone of you all the best and good luck with this course, future Chemical Engineers.



**Mohammad Shafizruddin bin Fazli Ku, Year 1**

## *The School of Chemical Engineering*



The Engineering Campus was originally located in Tronoh, Perak. Back then, the campus was known as Universiti Sains Malaysia Kampus Cawangan Perak (KCP). The campus operated for 15 years (1986–2001) before relocating to Nibong Tebal. Our Chemical Engineering School attracts many undergraduates, postgraduates and international students from countries around the world.

# The Postgraduates



## MASTER'S DEGREE

List of Master's Degree students whom have successfully completed their research and their respective title of research in the 2015/2016 academic session.

No.	Student Name	Title of Research
1	Amirul Islah Bin Nazri	Recovery of Gold from Electronic Waste Through Non-Cyanide Based Electrodeposition Technique
2	Chai Chuan Chun	Influences of Suspended Solid and Natural Organic Matter on Magnetophoretic Separation of Microalgae from Fish Farm Water
3	Faiznur Binti Mohd Fuad	Extraction of Oil from Calophyllum inophyllum Seeds: Optimization and Kinetics Studies of Ultrasonic-Assisted Extraction
4	Noor Izzati Binti Md Rosli	Photocatalytic Removal of Phenol and Basic Blue 3 (BB3) Using ZnO/C3N4 Under Outdoor Light Irradiation
5	Nur Amirah Mohd Ali	Simulation and Optimization of Biodiesel Production from Dimethyl Carbonate in Batch Reactor
6	Nursyuhaida Binti Mohamad Sobri	Statistical Analysis of Polymer-Based Gel for Water Shut-off Treatment in Oilfield Application
7	Roszaini Binti Md Salleh	Growth of Carbon Nanostructure Arrays On Nickel Electroplated Copper Substrate
8	Sahrizul Aman Bin Asri	Catalytic Hydrogenation of CO <sub>2</sub> Over Cu/ZnO/SBA-15 Catalyst for Production of Methanol
9	Siti Nor Azreen Ahmad Termizi	A Study of Mixing Performance in a Microreactor Using Computational Fluids Dynamic (CFD)
10	Susan Ling Ying	PVDF-TiO <sub>2</sub> Nanocomposite Membrane with Anti-Fouling Properties for Oil Emulsion Removal
11	Tuan Syahiira Binti Tuan Zarawi	Removal of Methylene Blue by Bentonite Based Adsorbent Film: Characterizations and Performances Study
12	Wong Yee Jie	Synthesis and Characterization of CoAl <sub>2</sub> O <sub>4</sub> and Co-Al <sub>2</sub> O <sub>3</sub> -CoAl <sub>2</sub> O <sub>4</sub> Catalysts Activity in Carbon Dioxide Reforming of Methane





# DOCTOR OF PHILOSOPHY (PhD)

List of Doctor of Philosophy students whom have successfully completed their research and their respective title of research in the 2015/2016 academic session.

No.	Student Name	Title of Research
1	Abdullah Adnan Abdulkarim	Polyethersulfone-ZnO Mixed Matrix Hollow Fiber Membrane with Anti-Fouling Properties for Humic Acid Removal
2	Ang Gaik Tin	Non-Catalytic Supercritical Methanol (SCM) Reaction and Superheated Methanol Vapour (SMV) Reaction for Fatty Acid Methyl Esters (FAME) Production
3	Gobi Kanadasan	Accumulation and Extraction Of Polyhydroxyalkanoate From Aerobic Granules Treating Palm Oil Mill Effluent
4	Hoo Peng Yong	Mesoporous Sba-15 Functionalized with Sulfated Metals for Direct Esterification of Glycerol and Lauric Acid
5	Ilyia Binti Idris	Membrane Distillation Application for Palm Oil Mill Effluent Treatment and Recovery
6	Lau Lee Chung	Removal of Hydrogen Sulfide from Biogas using CeO <sub>2</sub> /NaOH/PSAC: Synthesis and Performance from Laboratory Scale to Scale Up Process Design
7	Lim Guat Wei	Molecularly Imprinted Polymer Layer Using Navicula sp. Frustules as Core Material for Lysozyme Recognition
8	Mohd Hizami Mohd Yusoff	Combustion of Municipal Solid Waste in Fixed Bed Combustor for Energy Recovery
9	Mohd Razealy Bin Anuar	Hydrotalcite Catalysts Prepared Using Combustion Method for Selective Etherification of Glycerol to Diglycerol
10	Mohd Usman Mohd Junaidi	Separation of Gas Mixtures Using Inorganic Membrane
11	Ng Qi Hwa	Development of Magnetophoretic Actuation Composite Membranes for Removal of Humic Acid
12	Noor Fazliani Shoparwe	Production of Hyaluronic Acid by Streptococcus Zooepidemicus ATCC 39920
13	Norhusna Mohamad Nor	Preparation of MW-Assisted N-Modified Palm Shell Activated Carbon for H <sub>2</sub> S Removal from Simulated POME Biogas
14	Nur Azimah Jamalluddin	Mesocellular Foam Incorporated with Copper and Iron as Catalyst for Azo Dyes Degradation
15	Ong Yit Thai	Modification of Multi-Walled Carbon Nanotube for Pervaporation Nanocomposite Membrane

No.	Student Name	Title of Research
16	Seah Choon Ming	Growth of Single-Walled Carbon Nanotubes Through PEG-Ethanol Colloidal Solution
17	Wan Nurul Huda Wan Zainal	Carbon Membranes Derived from Polymer Blend of Polyetherimide and Polyethylene Glycol for Gas Separation
18	Wan Zuraida binti Wan Kamis	Synthesis and Characterization of Mixed-Oxides (Cr, W, Ti, Mn) Catalysts to Produce FAME from Palm Fatty Acid Distillate, Non-Edible and Waste Cooking Oils
19	Yasmin Binti Che Ani	Adsorption Studies of Dyes Using Clay-Based and Activated Carbon Adsorbents
20	Yeap Swee Pin	Magnetophoresis of Poly(Sodium 4-Styrenesulfonate)/Fe <sub>3</sub> O <sub>4</sub> Clusters: The Influence of Colloidal Stability
21	Yee Kian Fei	Production of Biodiesel from Jatropha Curcas L. Oil Catalyzed by SO <sub>4</sub> <sup>2-</sup> /ZrO <sub>2</sub>

## 'From Nigeria to Malaysia.'



I chose Malaysia since it is growing in research study and it also has great facilities that are comparable to the World standard. I have been here for about 2 years. The reason I choose USM is because of the ranking, it is one of the top university in the world (38th). It also has the research program that I intend to pursue.

I'm from Nigeria and I have 30 friends in total at both USM engineering and main campus. I have a couple of friends from Nigeria that are studying in Malaysia before I arrived but they are studying in different universities.

The research programme that I am studying here is membrane technology for gas separation. Nigeria is among the world largest oil producing country (Rank 3rd in the world's OPEC Rankings). Nigeria has a huge problem on gas flaring that causes global warming. I'm studying this to help solve this problem and build new technology for Nigeria.

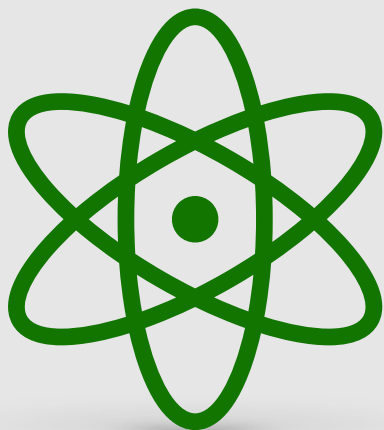


After completing this course I intend to go back to Nigeria and showcase this new technology so that I could help solve the problem with gas flaring. I have made a publication which is the "Thickness effect on the morphology and permeability of CO<sub>2</sub>/N<sub>2</sub> gas in asymmetric polyetherimide membrane". The challenging thing that I endure here is that research work is very intense and tough, I spend most of my time in the lab and someday I even spend the whole day in the lab to wait for good results. The thing that makes me incredibly excited is when I obtain good result for my experiment. Nigeria is also now under recession, thus currency fluctuations have been an issue. Apart from that, some of the lessons are conducted in Bahasa Malaysia and I feel it is difficult to understand as I am not so fluent in that language.

The difference I feel between an undergraduate and a postgraduate is that as a postgraduate, you only have to focus on research work whereas as an undergraduate you spent most of your time doing coursework. As a postgraduate student, I spend most of my time in the lab but it's not the same for undergraduate. I study undergraduate to prepare myself for postgraduate research work. Without the fundamentals for undergraduate study you can't proceed on research study. Moreover, postgraduate study gives you an insight of what is happening around the world and it also expands your view especially in technology sector.

The thing that I like the most here is that the facilities are great and it is on par with world standard. The cost of living here is also reasonable. Most importantly, the lecturers here are very helpful and they always entertain any ideas that you bring up.

**Salaudeen Yusuf Olantuji,**  
PhD Student,  
School of Chemical Engineering,  
Universiti Sains Malaysia.



“Good education is not what fills your head with facts but what stimulates your curiosity. You then learn for the rest of your life.”

**- Neil deGrasse Tyson**

# STAFF HIGHLIGHTS

## Professor Dr. Abdul Rahman Mohamed



**Qualifications:** *B.Sc. (Southern California), Ms.C, Ph.D. (New Hampshire)*

**Expertise:** *Reaction Engineering & Catalysis, Air Pollution Monitoring And Control, Fuel Technology, Nanotechnology*

- **What made you pursue your studies in Chemical Engineering?**

In high school, my favourite subject was Chemistry. Therefore, I wanted to pursue a field related to this subject. At that time, I thought Petroleum Engineering was the right choice but with the guidance of my counsellor in MRSM I was informed that the field does not deal with Chemistry majorly but more to labouring as it is more to drilling and transportation. Hence, I decided to study Chemical Engineering and I knew I have taken the right choice. My two kids are now also learning this course. So, I guess we're a family of 'chemengineers'.

- **What was the biggest struggle you faced during your years in university?**

In MRSM, our syllabus was based in Bahasa Malaysia. Going into University in the States, everything from textbooks to research articles were based in English. It wasn't really a struggle but learning the terms and keywords of the engineering language was difficult at first. For me, struggling is part of a student's life. Some struggles are bigger than others so all you have to do is work hard to overcome them. We're all capable of doing anything, it all starts with you. The way I studied and survived in the University was to ALWAYS to prepare early. May it be completing a tutorial, reading a lab manual or even before going into lectures. I know myself and my capabilities..



- 
- **In your opinion, what are the important qualities a student studying Chemical Engineering should possess?**

Students have 3 qualities that employers look for which is 'A.S.K.'. 'K' is knowledge. A term that is very basic as all students need to study and do well in their examinations while grasping and building the knowledge in the engineering industry. I have never thrown any of my books, even tutorials ever since I was in my first year in university in the 80's. You'll never know when you need to look back for information. Secondly, 'S' is skill. You cannot possess skills from the books. It's all about experience. You may be an extrovert or an introvert, but that shouldn't be an obstacle to build your

*"You don't have to be a genius to succeed in life, you need to require qualities that makes you a person who can succeed in life. It all comes from you."*

skills. Last but not the least; 'A' is for attitude. Many of our students come in a full package but with a lack of attitude. Attitude starts from your period of studying to your work life. You don't have to be a genius to succeed in life, you need to require qualities that makes you a person who can succeed in life. It all comes from you.

- **You have recently taken up as the post of Deputy Vice Chancellor, how has it been so far?**

I was the Dean of this school before and I think School of Chemical Engineering has a lot of talent. Not only the lecturers but the students as well. I was then presented the opportunity to work as the CEE in the industry. It was then that I realise the industry needs us as much as we need them. Now, by becoming the Deputy Vice Chancellor, I know what they seek for in students. Speaking from the industry's point of view, talent and attitude is something they look for in every fresh graduate. They do give me feedbacks from time to time. There are a lot of job opportunities out there, from companies that are actually desperate for intakes but that doesn't mean they would take any tom, dick or harry. Among the companies and industries, they have told me that USM students are their number one choice. In fact, they are hoping for more applications from our students. We have trained our students well, now it's up to you to fit into their needs. Becoming the TNC is my main priority but that doesn't restrict me from still carrying out my researches with my team as that is still my passion. As the TNC I'm representing the university, but Abdul Rahman is from School of Chemical Engineering. It is still an honour to be contributing to this school as well as the university and I am grateful for having a great team of officers to help me through it. I love doing what I am doing. USM has given me a lot of opportunities and now it is time to give back.

*Our hearty congratulations as well to Professor Dr. Abdul Rahman Mohamed on his new role as **Deputy Vice Chancellor** of Universiti Sains Malaysia.*



## Professor Dr. Bassim H. Hameed

Thomson Reuters' "The World's Most Influential Scientific Minds" in 2014 and 2015 and most recently, one of the Most Cited Researchers for the two subjects of Chemical Engineering, and Environmental Science & Engineering in 2016 by Shanghai Global Rankings of Academic Subjects.

### • Why did you choose to serve in Malaysia and in USM in particular?

At the time, due to the instability in my home country, I was looking for a peaceful country to start a family, and also as a stepping stone in my academic career, particularly in research as I was very passionate about it. Malaysia is known to be a very harmonious multicultural nation and with a number of reputable universities. As a young lecturer, I did some research regarding Universiti Sains Malaysia (USM), and through my friend's recommendation and the university's strong reputation, I made the decision to join USM. After 17 years of committing to my work here, I am proud to say that I made the right choice.

### • In your opinion, which awards are you particularly proud of and why?

As a researcher, my proudest moments are when my research output makes an international impact in the field of Chemical Engineering. I am proud that my research was internationally recognised as being listed in Thomson Reuters' prestigious list of Highly Cited Researchers in 2014, 2015 & 2016, and being the only Malaysian-based researcher to have been awarded this award for three consecutive years. Additionally, I am proud of being listed in Thomson Reuters' "The World's Most Influential Scientific Minds" in 2014 and 2015. Most recently, being listed as one of the Most Cited Researchers for the two subjects of Chemical Engineering, and Environmental Science & Engineering in 2016 by Shanghai Global Rankings of Academic Subjects. Again, I was the only Malaysian-based researcher to be listed in two subjects.



- **What truly motivates you to keep striving even in difficulties?**

Research has always been my passion, and truly that is why I do my work today. But I do want to be able to leave an impact in my field. There are many researchers worldwide in chemical engineering who are producing great output, and because of that I would like my output also to be unique, and therefore remembered. This is my motivation to do my best in producing research output that will leave a mark in the field.

*"I would like my output also to be unique, and therefore remembered. This is my motivation to do my best in producing research output that will leave a mark in the field."*

- **Would you like to share some advice to the students of USM in regards to their studies?**

To the undergraduate students, do take good notes and ask questions in class, and think critically. Outside of the classroom, form study groups and learn to communicate effectively. But, do not forget to have fun and enjoy learning! These years will make some of the best memories in your life.

To postgraduate students, my advice is to be focused in conducting good research that is relevant to global issue and avoid conducting research solely because of your personal interest.



**Professor Dr. Bassim H. Hameed**

**Qualifications:** B.Sc. (Baghdad), Ph.D. (Salford)

**Expertise:** Reaction Engineering, Biofuels, Adsorption Process, Activated Carbon, Environmental Catalysis

A banner for the QS World University Rankings 2017 by subject Chemical Engineering. The banner features the QS logo, the text 'WORLD UNIVERSITY RANKINGS by subject Chemical Engineering', the year '2017', and the ranking '#38'. On the left, there is a graphic of three graduation caps. At the bottom, there are logos for the Malaysian flag, USM (Universiti Sains Malaysia), APEX, and SOARING UPWARDS.





# ‘KAK NIZA’

"Dealing with the selected students entering USM particularly in the School of Chemical Engineering, is indeed a privilege for me. It gives a thrill to see the progress of students in terms of personality and academic. While dealing with the students there are a variety of experiences that can be used to improve my service. To all students, learn and seek knowledge wisely. Use this opportunity while you are at the School of Chemical Engineering. I pray that all of you will succeed."

**Administrative Assistant (Clerical/Operation)**  
Aniza Abdul Ghani



# 'ABANG ROQIB'

"My life in USM started around 15 years ago as I started working in USM since 2002. The thing that made me choose the School of Chemical Engineering is because of my overwhelming interest in Chemical Engineering and my basics is also chemical engineering. I also have working experience in a chemical plant which is Polyplastics Asia Pacific Sdn. Bhd. situated in Gebeng, Pahang.

The thing that I like the most about Chemical Engineering School USM is that the environment is very harmonious and I really like educating the students and providing technical service to this school. The dean and the technical head here is very supportive. It is very easy to handle things here as everyone is very cooperative and are able to work together. Apart from that, the facilities here are complete and all equipment are received per requested. The facilities here are also in the right requirements for the students learning.

The main thing that encourages me to come to work every day is that my wife is also working in the same place as me (Chemical Engineering School). Besides, the environment here is non-stressful and I don't feel bored coming to work. I feel very happy to assists students with the lab work every day.

The message that I would like to convey is that, I hope the knowledge acquired by the students are applied in all the fields not only in the working industry in the future but also in their daily life. Every practical training and knowledge should be implemented throughout their working arena. I also hope that all the students would always be united everywhere you go."



**Assistant Engineer (Unit Operations Laboratory)**  
Mohd. Roqib Mohd. Rashidi

# ALUMNI OF THE SCHOOL

## Dr. Azam Taufik Mohd. Din



**Class of '02**

**Qualifications:** B.Eng, Ms.C, Ph.D. (Usm)

**Expertise:** Adsorption, Ordered Mesoporous Materials, Nanomaterials, Environmental Remediation

### • What drove you to pursue your studies in Chemical Engineering?

[Laughing] I'm going to give you a frank answer. When I was about to embark on my university journey in 1999, there was a big limitation in finding information even on the internet. So, choosing Chemical Engineering was somewhat a random choice. I did know what basic subjects were going to be sharpened in this field but to know it in detail was an advantage that I never had. At that time, many people were idolising literally anyone who worked in the petrochemical industry. With that perception, I chose to study chemical engineering degree in USM. It was hard at first but eventually when you're in your final year, you'll finally see how everything fits into place and that's when my passion for chemical engineering was built. So if you feel lost now, don't worry. You'll find your way, eventually.

### • How does it feel like to be teaching in your alma mater?

I take this as a case where the Malays used to say "Sirih pulang ke gagang". In a way, it's me giving back what I can to the place that once gave me everything, especially opportunities. I started my degree program in USM located in Tronoh in the year 1999 all the way up to 2002. I then continued my Masters here from 2003 to 2005 and rendered to the school in 2006 till present day. I was much honoured for being sponsored by USM to pursue my PhD. I worked in Intel for one year and a half but it was never fulfilling. Hence, coming back to USM was the right choice as I've never felt happier carrying out my tasks while interacting with the students here. Also, there's no greater happiness than to see my students become someone important in the future.





- **A piece of advice you'd like to share with your students that are struggling with this course?**

*"It is always best to find friends in your circle compared to friends from other courses. They might not be able to solve your problems directly, but most importantly, you will have a shoulder to cry on"*

Carefully choose the right group of friends that can share your passion and support your vision in the chemical engineering field. It is always best to find friends in your circle compared to friends from other courses. They might not be able to solve your problems directly, but most importantly, you will have a shoulder to cry on. One should know how to manage the stress that comes with the course as well as ways to lead a healthy campus lifestyle. Finally, live your life to the fullest!

## Shang Jun Gwee

- **Can you tell us a bit about on your current job and your major responsibilities?**

A few of my main responsibilities include proposing solutions to overseas customers by solving their problems in their process and production line using our technological equipment and engineering know-hows. Other than that, facilitating installation and commissioning works at plant sites in Malaysia, Singapore and Thailand as well as participating in technology exhibitions held in Japan locally and in Germany internationally as a multi-lingual exhibition presenter. It doesn't stop just here but these are just to name a few.

- **What is/are your greatest achievement(s) so far?**

I think I have yet to achieve any achievement in my life as I am still in the early years of my career. I would say there were times where I struggled but I never gave up – especially during the period when I first landed in The Land of the Rising Sun. I knew no one. I knew nothing about the language (I hated myself for not even memorising the basic Hiragana, Katakana before boarding that plane bound for Tokyo). But this was exactly what I was yearning for - being able to gauge where I stand, getting out of my comfort zone, stretching myself to the limits and seeing how far I can propel. I wanted to know how I would respond, how I would react being put in such situations. I was curious of myself, and I wanted to know myself more. And here I am now, still surviving in one of the most densely populated places on Earth.

During my 2.5 years stint in Japan, I managed to widen my horizons, albeit superficially, in a country full of cultural courtesies, where this whole journey has been an adventurous ride for me. It was not as smooth sailing as I once thought, but it was a turning point for me. Every day is still a new day to me. And I cannot wait to continue embarking and growing on every chapter of my life.



- **How did studying in USM made you the man you are today? What are the best memories you have studying in USM?**

The period between March to June during my final year was an acid test for me, for I had to juggle between my academic performance varying from arduous group projects, daunting FYP (Final Year Project), to the examination finals in June, and also my extra-curricular activities from sports to club events, not to forget mentioning the need to always travel to and fro between USM and my hometown (Seremban) for the job interviews (mostly held in KL). Sleepless nights had become a norm, and most of the time, I was never able to head to my dreamland earlier than my roommates. It was no easy task, but it was worth trying and fighting for. All these did not kill me. And what did not kill me made me stronger. I have countless good memories in USM, probably one of the best four years in my life. One of it includes our champion-winning experience in NACES Technical PowerPoint Presentation with 3 of my best buddies in the class. Standing on that podium was definitely one of my school highlights and proudest moments of my life. Oh, I broke into labs illegally during weekends in order to finish my FYP earlier, and was caught red-handedly! These moments will remain indelibly etched on my mind forever.



***Class of '14***  
*Sales & Application Engineer,*  
*Nara Machinery Co. Ltd (Tokyo).*

- **What has kept you motivated throughout the years?**

The desire to know myself better. I always believe that each and every one of us could and should unleash our full potential. Hereby, I would like to urge all undergraduates to be more ambitious and audacious, seizing every single opportunity that comes your way, never take anything for granted. After all, there is no harm trying to widen and maximise your options.

To end this note, an adage seems appropriate:

**“Not knowing when the dawn will come, I open every door.”**

**By Emily Dickinson, The Complete Poems.**

**Fly high, and the world is your oyster!**

“Engineers like to create their own problems. If there are no problems handily available, they will create their own problems.



**- Scott Adams**

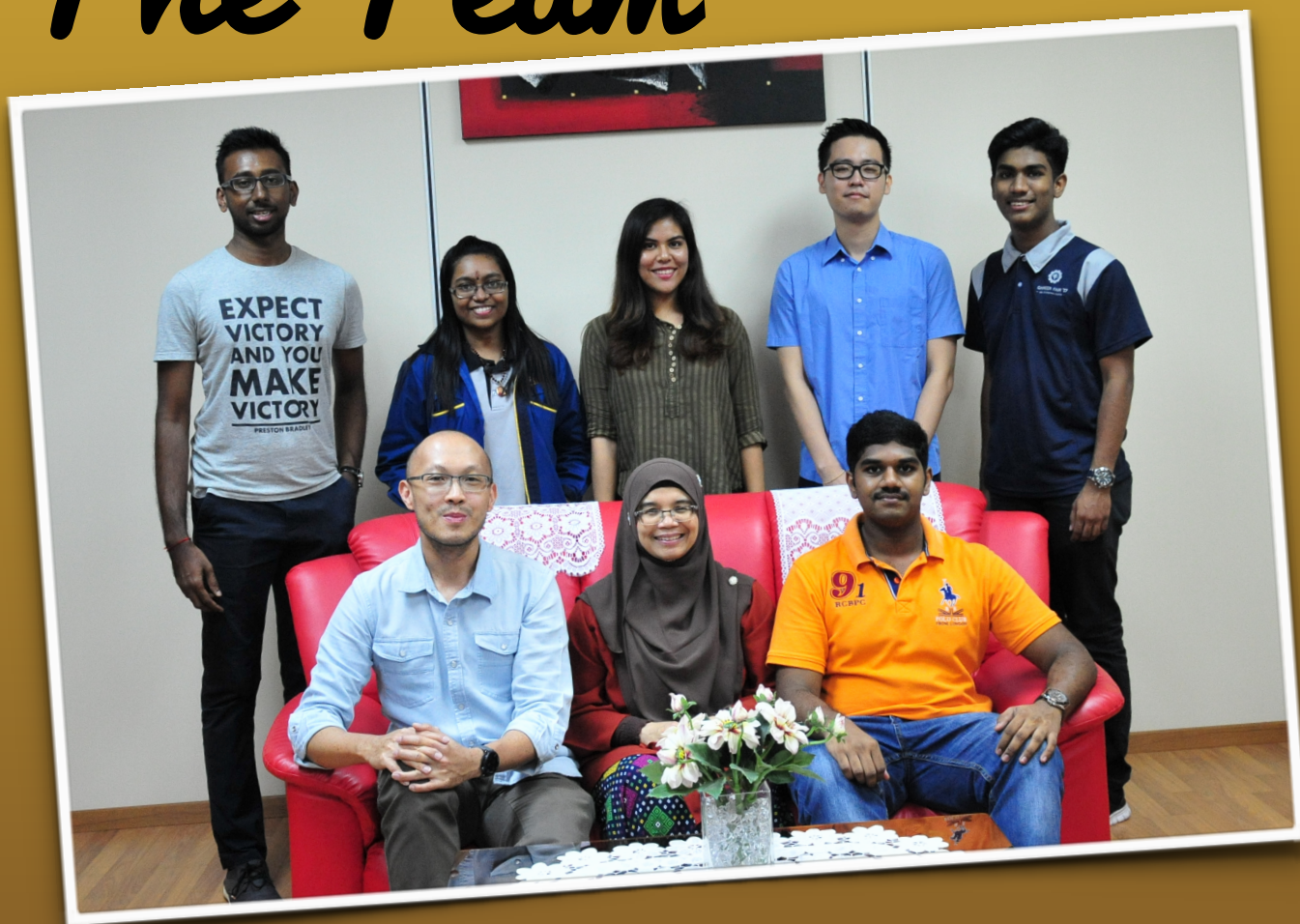


# Acknowledgement

We would like to sincerely thank everyone whom have helped us in the production of this inaugural edition of CEON especially the following people:

- Professor Azlina Harun @ Kamaruddin
- Mr. Mohd. Hisyam bin Adnan
- Associate Professor Dr. Lim Jit Kang
- Ms. Aniza binti Abdul Ghani

## The Team



**Back from left:** *Tharveen Raj, Vinessa, Nurin Dianah, Danny Hartanto, Samuel Anand*

**Front from left:** *Assoc. Prof. Lim Jit Kang, Prof. Azlina Harun, Kirthan*



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