KU ESYRA HANI KU ISHAK

**Lecturer
Mineral Resources Engineering,
Engineering Campus,
Universiti Sains Malaysia.**

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✉ **kuesyrahani@usm.my**

MY PROFILE

Having **8 years working experience** in **research and academic area** in performing **laboratory testing, modelling and simulation, training and teaching** with the background of **physical mineral processing and produced water treatment process in the application of Enhanced Oil Recovery (EOR)**

EDUCATION

YEAR: 2016-2020

6 STARS (HIGHEST LEVEL)

PhD Project: Experimental and Simulation Study of Liquid-liquid Hydrocyclone (LLHC) From Enhanced Oil Recovery Produced Water

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**YEAR:
MSc- 2014
BSc- 2010**

UNIVERSITI SAINS MALAYSIA

6 STARS (HIGHEST LEVEL)

The only Accelerated Program for Excellence (**APEX University**) in Malaysia
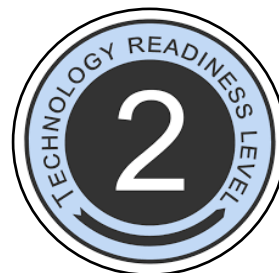
MSc Project: Modelling and Simulation of Air Classifier in Cement Manufacturing
BSc Final Year Project: The Effect of Grinding Additives to Mineral Grinding

MY ACHIEVEMENTS

Achieved the industry (PETRONAS) acceptance, Technology Readiness Level (TRL) level 4 on the software development for oil-water separation by using Liquid-liquid Hydrocyclone (LLHC) and level 2 on the model development for oil-water separation by using Flotation Column, in EOR application

Success in designing and fabrication of the pilot scale LLHC fabrication (Value: RM100,000) for PETRONAS-UTP Technology Development Project

Received Dean's List award for Semester II in Year 2009 in Universiti Sains Malaysia

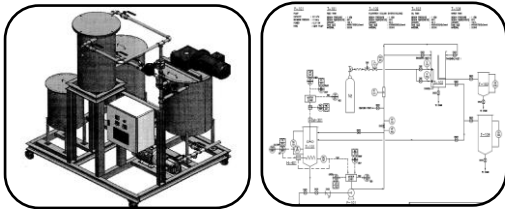Completed TOEFL ITP with the score 567

MY EXPERTISE

Modelling and Simulation

- The **ability to use modelling tools** such as Response Surface Methodology (RSM), Artificial Neural Network (ANN) and Fuzzy Inference System (FIS) or ANFIS as prediction tools by using **MATLAB and Design Expert software.**
- The ability to do **data analysis and interpretation** of the **statistical analysis**
- The ability to do **inference, prediction and optimization**
- The ability to create a **Graphical User Interface** as the end-used product for the industry by using MATLAB

Experiences from

- PhD project used **RSM and ANFIS** model as the prediction tool for predicting the efficiency of the oil removal from LLHC
- MSc project used **JKSimMet** to predict the efficiency of the air classifier in cement manufacturing

Equipment Design and Fabrication

- The ability to **draw and design** the equipment for **laboratory scale and pilot scale**
- Strong **ability to read and interpret P&ID** diagram

Experiences from

- Design of a **pilot scale LLHC test rig** for PETRONAS Research Sdn Bhd, Malaysia
- Design of a **lab scale flotation unit** for PETRONAS Research Sdn Bhd, Malaysia
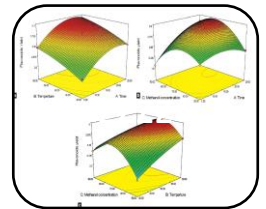
Design of Experiment and Laboratory Work

- The ability to design experiment by using **Design of Experiment (DOE)**
- Strong skill for **performing laboratory testing** including:
  - **Sample preparation** for mineral processing such as Coning and Quartering and Riffling method, and synthetic emulsion preparation.
  - **Interfacial testing (IFT)** by using IFT spinning drop and IFT pendant drop
  - **Contact angle measurement** by using IFT pendant drop
  - **Viscosity measurement** by using rheometer
  - **Gas Chromatography** (GC test)
  - **Particle size distribution test**
  - **Oil droplets size distribution test**
  - **Density test**

Experiences from

- 8 years of experiences involved in the research area starting from **internship placement, final year project during BSc degree, MSc degree, job as Graduate Assistant, Research Assistant, Research Officer, collaboration from the industries, industrial visits and PhD project.**

WORKING EXPERIENCES

RESEARCH

TITLE	DURATION	RESPONSIBILITY AND ACHIEVEMENTS
Lecturer, Mineral Resources Engineering UNIVERSITI SAINS MALAYSIA	Feb 2021- Current	• Involve in research and academic activities
Research Scientist for Shale Gas Research Group (SGRG) UTP UNIVERSITI TEKNOLOGI PETRONAS SGRG SHALE GAS RESEARCH GROUP	June 2020- Jan 2021	• **Conduct research, prepare literature review, collect and analyze data** for project entitle entitle "Development of Fracking Fluids for Maximizing Shale Gas Recovery while Minimizing Environmental Impact"
Research Officer for Center of Research for Enhanced Oil Recovery (COREOR) UTP UNIVERSITI TEKNOLOGI PETRONAS COREOR CENTRE OF ENHANCED OIL RECOVERY	2019- 2020	• **UTP Advocates 2019 Silver Winner** • **Successful in achieving ISO45001(Occupational Health & safety Management System accreditation) for Institute of Contaminant and Inst of Enhance Oil Recovery laboratories and SOHELP (Systematic Occupational Health Enhancement Level Program) level 5 recognition by DOSH** • **Develop and carry out an efficient documentation** and filing system for all projects under COREOR • **Make research schedules** to monitor the activities of research teams for all COREOR equipment • **Produce professional quality reports, presentations** and briefs for all projects under COREOR
Research Officer for Grant Project UTP-PRSB UTP UNIVERSITI TEKNOLOGI PETRONAS PETRONAS	2015- 2016	• In charged in conducting **literature review, methodology and fabrication** of the equipment on PETRONAS project. • Responsible in **communicating with PETRONAS Research Sdn. Bhd.** • Performed **experimental study** on the effect of surfactant and polymer to the efficiency of the oil removal from flotation and hydrocyclone • Responsible for the **PETRONAS monthly progress presentation** for project update • **Monitor and record the project budget** and **provide ready access report** for the project leader
Research Assistant UNIVERSITI SAINS MALAYSIA	2011- 2012	• **Request or acquire equipment supplies necessary for the project** such as ball mill, ring mill, jaw crusher, sizer and supervise undergraduate students working on the research project • **Responsible for project update** presentation

WORKING EXPERIENCES

TEACHING

POSITION	DURATION	SUBJECT
Graduate Research Assistant UTP UNIVERSITI TEKNOLOGI PETRONAS	2016-2019	• Static & Dynamic Mechanics • Introduction to Petroleum Engineering • Reservoir Rocks and Fluids Properties Laboratory
Graduate Assistant USM UNIVERSITI SAINS MALAYSIA	2012- 2013	• Mining Processing Engineering Lab • Mineral Chemical Lab • Comminution and Sizing

INDUSTRY

POSITION	DURATION	RESPONSIBILITY
Sales Engineer SILITECH	2010-2011	• Prepare and deliver technical presentations explaining products or services to customers and prospective customers • Confer with customers and engineers to assess equipment needs and to determine system requirements • Secure and renew orders and arrange delivery
Internship CIMA A member of UEM	2007	• Cement Industries of Malaysia (CIMA) – Has been assigned to quarry, production and quality control department to learn about the cement manufacturing process.

PROJECT COLLABORATION

UNIVERSITY/ COMPANY	DETAILS
PETRONAS	Development of hydrocyclone and flotation equipment in PETRONAS produced water treatment system. In return, PETRONAS has provided the samples to UTP. TOTAL GRANT RECEIVED= RM317,000
CIMA A member of UEM	Development of model for optimizing the air classifier for CIMA. In return, CIMA had provided the samples to USM.

OTHER EXPERIENCES

ACADEMIC COLLABORATION

UNIVERSITY	YEAR	DETAILS
Petroleum Engineering, Xi'an Shiyou University, Xi'an, China	2018	• Student exchange for undergraduate and postgraduate students for similar course subjects and syllabus • Exchange the lab facilities and testing • Exchange of the expertise, professors and lecturers to teach at the university or to give talk on certain subjects • Join publications and joint supervision
Chulalongkorn University, Bangkok, Thailand	2010	• To serve as a platform of educational interaction and social networking between students of both universities and Industry professionals in Thailand in the field of engineering studies. • To create positive impacts to the mineral resources engineering students through international exposure and the concept of education without borders. • Elevate USM at international level as Malaysia's first APEX University and to support the university to attain World Class University Status. • to perceive possibilities of future engineering in Malaysia.

OTHER EXPERIENCES

FIELD VISIT

COMPANY	ACQUIRE KNOWLEDGE
CIMACO Quarry, Perlis, Malaysia	• Explored the **quarrying process, from blasting, crushing, grinding and screening toward the end-product.**
Rahman Hydraulic Tin Mine, Kedah, Malaysia	• Acquired knowledge in **mining activities of hard rock tin ore**
Malaysian Smelting Company (MSC), Penang, Malaysia	• Explored the process of **producing tin metal and tin based products**
Penjom Gold Mine, Pahang, Malaysia	• Acquired knowledge about the **mining process and processing operations**
Akara Mining, Pichit or Chatree Gold Mine, Electricity Generating Authority of Thailand (EGAT) Mae Moh mine, and Padaeng Mine and Padaeng Zinc Smelter, Tak, Thailand	• Acquired knowledge in **development of the mine, an overview of the mining and processing operations** • Explored Mae Moh Coal Mine at Lampang and **coal-fired power plant** which can serve the stable and lowest fuel cost per unit for electricity production in Thailand until 2028. • Explored **zinc refinery process**

OTHER EXPERIENCES

FUNDRAISING ACTIVITY

PURPOSE	ACTIVITIES
Raising fund to support the field trip to Thailand	• Car wash at School of Materials and Mineral Resources Engineering, USM. Manage to collect RM1000 in a day.

TRAINING

TRANING

- Breakthrough Journal and Thesis Smart Writing Methods 2019
- Gas Chromatography Perkin Elmer 2019
- S-Curve Training Analysis 2018
- Mendeley and Atlas.ti 2017
- Speed Reading Workshop 2017
- Safety Training: Mitigating Chemical Risk in Lab and Good Lab Practice 2016
- Uncover Multivariate Data Analysis 2016
- Seminar Master PhD ROKET 2017
- Mendeley Referencing by Dr. Othman Talib 2015
- Interfacial tension equipment IFT 700 2015

OTHER EXPERIENCES

LEADERSHIP

ORGANIZATION / EVENT	POSITION	DETAIL
Thesis and Paper for Journal Smart Writing Methods, Bangi	Manager (2019)	Guide the team towards the successful in organizing the event
Postgraduate Student Council, Universiti Teknologi PETRONAS	• Exco Program Department (2018) • Committee for the event (2017) -3 Minutes Thesis	Driving the team towards organizing all postgraduate activities in 2018
Boost Up your Writing Skill Event, Universiti Teknologi PETRONAS	President (2017)	Guide all excos towards the successful in organizing the event
Enhanced Oil Recovery Simulation Competition	Committee member (2016)	Participating and work in team towards organizing the EORSC
Postgraduate's Society Club, Universiti Sains Malaysia	Mineral Resources Engineering representatives (2011/2012)	Participating and work in team towards organizing all postgraduate activities
Royal Orchestra	• Treasurer • Keyboard player	• Interviewed potential candidate to participate in the Royal Orchestra • Guide the team to improvements in performing

SOFTWARE SKILL

- Microsoft Office
- Design Expert
- MATLAB
- Microsoft Visual Basic
- JKSimMet

OTHER EXPERIENCES

LEARNING SUBJECT

- Mathematic Engineering
- Materials Engineering
- Mechanics Engineering
- Engineering Drawing
- Geology Engineering
- Numerical Method and Engineering
- Statistics
- Engineering Practices
- Electrical Technology
- Physical Chemistry of Material
- Engineering Strength of Material
- Mineralogy Mineral Deposit
- Computer Method for Engineers
- Geomatic Engineering
- Mining Engineering Lab
- Comminution and Sizing
- Introduction to Mining Engineering
- Ore Petrography and Microscopy
- Physical Mineral Processing
- Hydrometrallurgy

- Chemical Analysis
- Mining Methods and Law
- Mineral Chemical Lab
- Engineers in Society
- Materials Transport Engineering
- Geochemical Exploration
- Pyrometallurgy
- Geophysical Engineering
- Mineral Economic
- Minerals Processing Engineering Lab
- Occupational Safety and Health
- Geomechanics
- Minerals Industry
- Environment and Mine and Plant
- Design
- Blasting Engineering
- Petroleum Engineering
- Production Engineering I
- Reservoir Rock and Fluid Properties
- Drilling Engineering I

ACADEMIC PRESENTATION AND EXHIBITION

PRESENTATION / EXHIBITION

- EOR Exhibition Presentation
- Lab demonstrator for visitors
- PETRONAS- UTP bi-annual meeting (quarterly meeting) 2016-2019

CONFERENCES AND PUBLICATIONS

CONFERENCES / SYMPOSIUM ATTENDED

- The International Field Exploration and Development Conference (IFEDC), 16-18 September, Xi'an, China, 2019- **Received Outstanding Paper Award 2019**
- The International Field Exploration and Development Conference (IFEDC), 18-20 September, Xi'an, China, 2018
- 5th International Conference on Oil & Gas engineering and Technology (ICOGET), 13-15 August, Kuala Lumpur, Malaysia, 2018
- PETRONAS Petroleum Engineering Forum, 4-7 September, Kuala Lumpur, 2018.
- 4th International Conference of Chemical Engineering and Industrial Biotechnology (ICCEIB), 1-2 August, Kuala Lumpur, Malaysia, 2018.
- Offshore Technology Conference Asia (OTC ASIA), 20-23 March, KLCC, Malaysia, 2018
- SPE Symposium: Production Enhancement and Cost Optimization, 7-8 November, DoubleTree by Hilton, Kuala Lumpur, Malaysia, 2017
- Putrajaya International Built Environment Technology, and Engineering Conference (PIBEC), 27-28 March, Putrajaya, Malaysia, 2017
- The 5th Regional Conference on Materials Engineering & The 5th regional Conference on Natural Resources & Materials, 22-23 January, Penang, Malaysia, 2013.

PUBLICATIONS

Conference Paper:
1. K. E. H. Ku Ishak M. A. Ayoub, "**The Oil and Water Separation from Surfactant Produced Water by Using A Flotation Column**," presented at The International Field Exploration and Development Conference (IFEDC), 18-20 September, Xi'an, China, 2018.
2. K. E. H. Ku Ishak M. A. Ayoub, "**Removal of Oil from Polymer Produced Water by Using Flotation Process and Statistical Modelling**," presented at 5th International Conference on Oil & Gas engineering and Technology (ICOGET), 13-15 August, Kuala Lumpur, Malaysia, 2018.
3. Hani;, K. E. and M. A. Ayoub, "**Statistical Modelling of Oil Removal from Surfactant/Polymer Flooding Produced Water by Using Flotation Column**," presented at 4th International Conference of Chemical Engineering and Industrial Biotechnology (ICCEIB), 1-2 August, Kuala Lumpur, Malaysia, 2018.

CONFERENCES AND PUBLICATIONS

4. K. E. H. Ku Ishak and P. L. Christopher, "**Removal of Oil from Polymer Produced Water Using Flotation Column**," presented at Putrajaya International Built Environment Technology, and Engineering Conference (PIBEC), 27-28 March, Putrajaya, Malaysia, 2017.
5. K. E. H. Ku Ishak and S. F. Saiyid Hashim, "**Modelling and Simulation of Air Classification in Cement Manufacturing**," presented at The 5th Regional Conference on Materials Engineering & The 5th regional Conference on Natural Resources & Materials, 22-23 January, Penang, Malaysia, 2013.

PUBLICATIONS

Journals Publication:
Published:
1. K. E. H. Ku Ishak and S. F. Saiyid Hashim, "**Modelling and Simulation of Air Classification in Cement Manufacturing**", Advanced Materials Research, Vol. 858, pp. 272-282, 2015.
2. E. H. Ku and M. A. Ayoub, "**Statistical Modelling of Oil Removal from Surfactant/Polymer Flooding Produced Water by Using Flotation Column**," Indonesian Journal of Chemistry, 2019.
3. K. E. H. Ku Ishak M. A. Ayoub, "**Removal of Oil from Polymer Produced Water by Using Flotation Process and Statistical Modelling**," Journal of Petroleum Exploration and Production Technology, 2019.
4. K. E. H. Ku Ishak M. A. Ayoub, "**Predicting the Efficiency of the Oil Removal from Surfactant and Polymer Produced Water by Using Liquid-Liquid Hydrocyclone: Comparison of prediction abilities between Response Surface Methodology and Adaptive Neuro-Fuzzy Inference System**," IEEE Access
5. K. E. H. Ku Ishak M. A. Ayoub, "**Performance of Liquid-liquid Hydrocyclone (LLHC) for Treating Produced Water from Surfactant Flooding Produced Water**," World Journal of Engineering

REFERENCES

Nor Idham Che Ghani
Talent Acquisition Manager
Universiti Teknologi PETRONAS
Tel: +60 5 3688 431
Email: idhamg@petronas.com.my

- *She is proactive, trustworthy, optimistic and well-discipline individual with proven capability and capacity*
- *She has shown her credibility by having significant skills in communication, negotiation, project management, leadership, and decision making throughout her academic and research experiences.*

Nor Idham Che Ghani

Assoc. Prof. Ir. Dr. Syed Fuad Saiyid Hashim
Dean,
School of Materials and Mineral Resources,
Universiti Sains Malaysia,
Tel: +604-5996158
Email: mrsyfuad@usm.my

- *Esyra has outstanding organizational skills. She is able to successfully complete multiple tasks with outstanding results despite deadline pressure.*
- *Esyra has actively participated in a diverse assortment of extracurricular activities and can be a good leader.*
- *She has good personality, easy going, and humble.*

Syed Fuad Saiyid Hashim

OTHERS

REFERENCES

Dr. Mohammed Abdalla Ayoub (PhD Supervisor/ TD-6.2 Project Leader) **Senior Lecturer,** **Petroleum Engineering,** **Universiti Teknologi PETRONAS.** Phone: +605 368 7086 Email: abdalla.ayoub@utp.edu.my	• *Esyra is one of the outstanding researchers in my lab.* • *Esyra's presentation skill has increased, and she knows how to present information clearly and effectively* • *Esyra was also a cooperative and reliable lab user.* • *She handled responsibility well and conscientiously followed through on all that was asked of her to maintain equipment and ensure that safety standards were met.* **Mohammed Abdalla Ayoub**
Zakwan Sahak **Mohd Zakwan Sahak** **Wellbore and Production Systems,** **R&D Hydrocarbon Recovery** **Petronas Research Sdn Bhd (PRSB)** Email: zakwan.sahak@petronas.com Phone: +603 2392 8787	• *I have watched her improved and growing in term of many aspects such as planning skill, presentation skill, laboratory skill, modelling and simulation skill.* • *She is determined, eager to learn and always have an interest to work in multi-disciplinary environment* • *She is also able to work either independently or in a team* • *The successful outcome from her previous research has proven her capabilities and dedication to the project in which she participated.* **Zakwan Sahak**
Dr. Mohd Nor Akmal Khalid **Assistant Professor** **Japan Advanced Institute of Science and Technology (JAIST),** **1 Chome-1 Asahidai, Nomi, Ishikawa 923-1211, Japan.** Phone: +81761511149 Email: akmal@jaist.ac.jp	• *Esyra put efforts in reading, attending the basic courses and consult me to expose herself to this different area* • *Esyra is also a confidence, independent and has excellent organization skill* **Mohd Nor Akmal Khalid**