

Results-oriented, dedicated educator and progressive process integration with experiences in materials science innovation, wafer fabrication, carbon capture and storage, energy and environmental science, membrane technology, gas separation, biomass and research and development. Having successfully achieved a Babcock Social Impact Award, Athletic Award and graduated with honours of Bachelor of Chemical Engineering from University of Adelaide, Australia. Fluent in English; skilled at communicating and independent fast learner with a tendency to see what needs to be achieved before being asked. Excellent written and oral communication skills. Ability to read and write Korean (Hangul), as well as 3D animation and video production skills.

## Education

2024-09-  
2025-09



### Postgraduate Diploma in Education

Ministry of Education Malaysia

- Graduate CGPA of 3.84/4.00
- Best TESL Student Award
- Distinction (A+) in Teaching Practicum

2013-02-  
2016-12



THE UNIVERSITY  
of ADELAIDE

### Bachelor of Chemical Engineering with First-Class Honours

University of Adelaide – Australia

- Graduate CGPA of 6.84/7.00.
- Awarded as Babcock Social Impact Award in Ingenuity 2016 for the thesis title "Preparation of Composite Materials based on Psyllium Husk and Sodium Montmorillonite Clay for the Innovation of Plastic Bag".

2012-01-  
2012-12



### Foundation in Science and Technology

Universiti Kuala Lumpur Malaysian Institute of Chemical and Bio-Engineering Technology -Melaka, Malaysia

- Graduate CGPA of 3.78/4.0.
- Received Silver Award in honour of creativity and novelty of the innovative invention for the Organic Bag from Rice Straw (O'Bag) which was exhibited at 2012 FIST AUST/NZ Science Engineering Fair (FASEF).
- Obtained IELTS Band 6.5.

2010-02-  
2011-12



### SIJil Pelajaran Malaysia (SPM) or Malaysian Certificate of Education

MARA Junior Science College Balik Pulau-Penang, Malaysia

- Obtained 5A+ (Malay Language, English Language, Islamic Studies, Mathematics, Additional Mathematics), 3A (Physics, Biology, History) and 1A- (Chemistry) in SPM.
- Outperformed as the School Woman Athlete Award.
- Dean's List Receiver with CGPA of 3.60/4.0.



## Nabilah Fazil

- About 7 years teaching experience in STEM subjects
- About 3.5 years experiences as an engineer
- Graduated bachelor from the University of Adelaide, Australia

## Professional Experiences

2024-09-  
2024-03



### Teaching Experiences: Chemistry Teacher

Sekolah Menengah Islam Al-Ikram

- Designing and developing curriculum plans, lesson plans, and instructional materials aligned with educational standards and objectives.
- Supervising laboratory experiments and activities, ensuring safety protocols are followed, and providing guidance on proper laboratory techniques and procedures.

2024-01-  
2022-07



### Industry Experiences: Technology Transfer Engineer

AT&S Austria Technologie & Systemtechnik (Malaysia) Sdn Bhd

- Support wet etching line on the installation qualification, tool qualification and product qualification.
- Actively participated and knowledge transfer in TKC supplier training in Cheongju, Korea for 3 weeks for wet etching line (DDV, FET and DFS process).
- Training coordinator for "I am expert"- LXP, DDV, FET, DFS, ADP, Desmear, ELP, ENEPIG, ABF materials process for all engineers.

2021-05-  
2022-05



광주과학기술원  
Gwangju Institute of Science and Technology

### Research and Teaching Experiences: Research Assistance

Gwangju Institute of Science and Technology-Korea

- **Research Experiences:** Performed and analyzed the production of formate from protein engineering of formate dehydrogenase to utilized the CO<sub>2</sub>.
- **Teaching Experiences:** Conducted tutorial and laboratory demonstration session for Environmental Microbiology and Environmental Engineering seminar for undergraduate course.

2018-07 -  
2021-04



UNIVERSITI  
TEKNOLOGI  
PETRONAS

### Research and Teaching Experiences: Graduate Assistantship Scheme

Universiti Teknologi PETRONAS-Perak, Malaysia

- **Research Experiences:** Exploring in materials innovation of membrane technology for CO<sub>2</sub>/CH<sub>4</sub> gas separation entitled "Novel Mixed Matrix Membrane of Polyether Block Amide (Pebax-1657)/Polyether sulfone (PES) with Multiwalled Carbon Nanotubes (MWCNTs) for CO<sub>2</sub>/CH<sub>4</sub> Separation".
- **Teaching Experiences:** Conducted tutorial and laboratory demonstration session for FAC 0025 Chemistry II and CDB 3062 Chemical Engineering Laboratory III.. Also, an examiner for CDB 3062 Chemical Engineering Lab III Project and HDB 2123 Workplace Safety in Malaysia.
- *Awarded as Winner for Best Micrograph Award in The Malaysia Solid State Science and Technology (MASS).*

2017-03 -  
Present



### Teaching Experience: Tutor

- Educate more than 50 students to excel in their life and examination. Teach Physics, Chemistry, Biology, Mathematics and Additional Mathematics on primary level, lower and upper secondary level.

## Technical Skills

Microsoft Office Suites

Excellent

Aspen Hysys

Excellent

Autocad and Fusion 360

Excellent

JMP

Excellent

Mendeley-Citation Manager and Writing Skills

Excellent

FTIR Analysis

Excellent

DSC Analysis

Excellent

TGA Analysis

Excellent

UTM Analysis

Excellent

TEM Analysis

Excellent

XRD Analysis

Excellent

FESEM Analysis

Excellent

Matlab

Excellent

Adobe Photoshop and Blender

Very Good

Simulink

Good

Labview

Good

2017-03 –  
2018-07



### **Industry Experience: Process Integration Engineer**

*Infineon Technologies Sdn. Bhd- Kedah, Malaysia*

- Owned processes and manage independently on process/ Inline/ PCM/ yield issues to meet line yield/ FCT yield/ PCM yield target performance.
- Provide production and design support related to process integration by improving yield, discussing design problems if any.
- Formulated and driven the process improvement plan based on systematic analysis of inline/ PCM/ Yield data to meet quality and yield plan/ target. Executed systematic process transfers from mother fab for mass production ramping, to improve process robustness and manufacturability.
- Worked closely with modules engineers to contain high DD and inline excursions and find root causes and provide working solutions.

2016-07 –  
2016-10



### **Industry Experience (Internship): Junior Water Treatment Engineer**

*SA Water-Australia*

- Provided technical support on water resource or treatment issues.
- Conducted water quality studies to identify and characterize water pollutant sources.
- Developed plans for new water resources or water efficiency programs.

2016-10 –  
2016-02



### **Research Experience: Final Year Project**

*University of Adelaide-Australia*

- Developed a novel composite material based on psyllium husk and sodium montmorillonite clay for the plastic bag invention with the supervision from Dr Pejman Talemi.
- Focus on material innovation, biomass and environmental science.
- Improved the efficiency of the materials on the mechanical strength by modifying the design, analyses the mechanical characteristics, tensile strength and the biodegradable character.
- This project had been honoured with 1000 Australian Dollar for Babcock Social Impact Award at Ingenuity 2016.

2016-12 –  
2016-01

### **Casual Experience: Administrative Assistant and Waitress**

*Tangritah Uyghur Restaurant- Australia*

- Handling office tasks, such as filing, generating reports and presentations, setting up for meetings, and reordering supplies.
- Providing real-time scheduling support by booking appointments and preventing conflicts.
- Screening phone calls and routing callers to the appropriate party.
- Maintain polite and professional communication via phone, e-mail, and mail.
- Anticipate the needs of others in order to ensure their seamless and positive experience.
- Greet and assist visitors.
- Cleaned tables and floors of dining area, ensuring that customers had a pleasant, hygienic dining experience.
- Served as a dedicated and enthusiastic waitress 5-6 nights per week.

## **Languages**

Bahasa Melayu (Natives)

Excellent

English

Excellent

Korean

Good

2016-02 –  
2016-12



## Teaching Experience: Tutor

*University of Adelaide- Australia*

- Tutored 120 first year undergraduate students and assisted Associate Professor Yung Ngothai in teaching Introduction of Principle Engineering, with a 99.167% subsequent pass rate.
- Received 96% positive feedback from students for competence and approachability.
- Held group and one-on-one sessions as necessary

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## Volunteer and Co-Curricular Activities

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- **2019-07 ➔ 2020-07**: Honorary Secretary of Universiti Teknologi PETRONAS Postgraduate Student Council 2019.
- **2019-07 ➔ 2020-07**: Media Executive of Wanita IKRAM Perak, Malaysia.
- **2019-07 ➔ 2020-07**: Post-graduate student advisor of Chemical Engineering Student Society (ChESS) at Universiti Teknologi PETRONAS (UTP).
- **2019-07 ➔ 2020-07**: Advanced Membrane System (AIMS) Executive Training Manager at Universiti Teknologi PETRONAS.
- **2019-12**: Malaysia student representative for 2019 Regional School for High Performance Computing Molecular Dynamics Simulation with LAMMPS at Bogor, Indonesia.
- **2019-11**: Awarded as Best Oral Presenter Award at Regional Conference on Solid State Science and Technology (RCSST).
- **2019-11**: Received 1st place for Women 100m in Universiti Teknologi PETRONAS Super Sports Championship 2019.
- **2019-09**: Head of facilitator in CSR Science Technology Engineering Mathematics (STEM) at Universiti Teknologi PETRONAS.
- **2019-09**: MARA student speaker representative at UTP-MARA Counsellors Seminar 2019.
- **2019-09**: Malaysia National 3 Minute Thesis Competition Committee in Universiti Teknologi PETRONAS.
- **2019-08**: Representative of UTP at the 10<sup>th</sup> edition of the University Scholars Leadership Symposium (USLS) 2019 in Kuala Lumpur, Malaysia.
- **2019-07**: Participant for Communication Spheres & 3M Research Proposal Defense Workshop.
- **2019-07**: Successfully participated in the "Hands-on Training Course on LaTeX" organized by IEEE Robotics and Automation Society Malaysia Chapter.
- **2019**: Post-graduate Student Representative of UTP at Graduan Aspire Career Fair 2019, Mega Career and Study Fair 2019, Kuala Lumpur.
- **2018-2021**: Participated volunteerism with iBantu IKRAM Pulau Pinang, Prihatin Ramadhan IKRAM Perak Tengah, Pasar Berkat, IKRAM Junior and Gema Malaysia.
- **2016-2018**: Invited motivational speaker at Sekolah Rendah Al-Hidayah Seri Iskandar, Kolej Matrikulasi Pulau Pinang, MRSM Balik Pulau and at Welcoming BBQ, Meet and Greet Australia by Malaysia Australia Student Council (MASCA).
- **2018**: Invited career speaker at Resume and Interview Workshop organized by Penang State Government.
- **2017**: Master of Ceremony for Infineon Bowling Competition.

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## Achievements

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- **2020**: Recognition for Leadership Award in conjunction with Postgraduate Engagement and Award Ceremony at Universiti Teknologi PETRONAS.
- **2019**: Awarded as Winner for Best Micrograph Award in The Malaysia Solid State Science and Technology (MASS).
- **2019**: Recipient of the Best Oral Presentations Awards during 30th Regional Conference on Solid State Science and Technology (RCSST).
- **2016**: Awarded as Babcock Social Impact Award in Ingenuity 2016, Australia.
- **2012**: Received Silver Award at 2012 FIST AUST/NZ Science Engineering Fair (FASEF).
- **2011**: Outperformed as the School Woman Athlete Award.

- **2010:** Awarded as the Most Praiseworthy Behaviour Student.

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## Research Grants Awards: Thinker and Applicator

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- **National:** Fundamental Research Grant Project (FRGS), *A Fundamental Study to Enhance CNTs Dispersion in Mixed Matrix Membrane by incorporating Hydrophilic Sorbitol* (FRGS/1/2019/TK10/UTP/01/1). **Approved amount RM90700.** 1 Sep 2019- 31 Dis 2020.
- **National:** Yayasan Universiti Teknologi PETRONAS (YUTP), *Development of Novel Pes/Modified MWCNT Nanocomposite Membrane for The Removal of Polycyclic Aromatic Hydrocarbons from Produced Water.* **Approved amount RM135000.** 17 Feb 2020-16 Feb 2023.

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## Publications

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- **Journal:** Hyeoryeong Lee, **N. Fazil** et al. Controlled Regioselectivity of Enzyme on Au/SiO<sub>2</sub> Micro/nano-template via Solid Binding Peptide Tag that Concurrently Facilitates Cofactor-surface Orientation. *Journal Science Advances*. Accepted. **(Impact Factor=14.14)**
- **Journal:** Reginald, S.S., Lee, H., **N. Fazil** et al, Direct Electrical Contact of NAD<sup>+</sup>/NADH-Dependent Dehydrogenase on Electrode Surface Enabled by Non-Native Solid-Binding Peptide as a Molecular Binder. *Electrochimica Acta* (2022) Accepted. **(Impact Factor: 6.901)**
- **Journal:** Reginald, S.S., Lee, H., **N. Fazil** et al. Control of carbon monoxide dehydrogenase orientation by site-specific immobilization enables direct electrical contact between enzyme cofactor and solid surface. *Commun Biol* 5, 390 (2022). **(Impact Factor: 6.288)**
- **Book Chapter:** **N. Fazil** and H. Mukhtar. "Chapter 4 - Module Design and Membrane Materials" in *Membrane Contactor Technology: Wastewater Treatment, Food Industry, Gas Separation and Carbon Capture*. Virginia Tech, USA.
- **Journal:** **N. Fazil**, H. Mukhtar, D. F. Mohshim, and R. Nasir, "Gas Permeation Properties of Multiwalled Carbon Nanotubes on Polyether Block Amide (Pebax-1657)/Polyethersulfone(PES) Blend Mixed Matrix Membrane for CO<sub>2</sub>/CH<sub>4</sub> Separation," *Solid State Phenomena*, vol. 307, pp. 258-263, 2020. **(Impact Factor= 0.40)**
- **Journal:** M. Zia ul Mustafa, H. bin Mukhtar, N. A. H. Md Nordin, H. A. Mannan, R. Nasir, and **N. Fazil**, "Recent Developments and Applications of Ionic Liquids in Gas Separation Membranes," *Chemical Engineering & Technology*, vol. 42, no. 12, pp. 2580-2593, 2019. **(Impact Factor=3.742)**
- **Journal:** **N. Fazil**, H. Mukhtar, D. F. Mohshim, R. Nasir, "Novel Mixed Matrix Membrane of Polyether Block Amide (Pebax-1657)/Polyether sulfone (PES) with Multiwalled Carbon Nanotubes (MWCNTs) for CO<sub>2</sub>/CH<sub>4</sub> Separation" to be submitted to *Journal of Industrial and Engineering Chemistry*, Elsevier. **(Impact Factor: 5.278)**

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## Conference Presentation

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- Gas Permeation Properties of Multiwalled Carbon Nanotubes on Polyether Block Amide (Pebax-1657)/Polyethersulfone(PES) Blend Mixed Matrix Membrane for CO<sub>2</sub>/CH<sub>4</sub> Separation presented in the 31<sup>th</sup> Regional Conference on Solid State Science and Technology (RCSSST) 2019, 6<sup>th</sup>- 8<sup>th</sup> November 2019 at Swiss-Garden Hotel Melaka, Melaka, Malaysia.
- An Innovative Design and Construction of High-resolution Patterning and Site-specific Immobilization of Glucose Dehydrogenase Gamma-Alpha Complex(GDH $\gamma\alpha$ ) on Solid Electronic Surface presented in The Korean Society for Biotechnology and Bioengineering (KSBB) 2022, 13-15<sup>th</sup> April 2022 at Daejeon Convention Center, Korea.

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## Journal Reviewer

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1. Manuscript ID: SEPPUR\_2019\_4052; Title: State-of-the-art modification of polymeric membranes by PEO and PEG for carbon dioxide gas separation: A review of the current status and future perspectives (Separation and Purification Technology).
2. Manuscript ID: SEPPUR\_2019\_384; Title: Incorporation of CO III acetylacetonate and SNW-1 Nanoparticles to Tailor O<sub>2</sub>/N<sub>2</sub> Separation Performance of Mixed-Matrix Membrane (Separation and Purification Technology).
3. Title: Preparation and Characterization of Blended Cellulose Acetate Membrane for CO<sub>2</sub>/N<sub>2</sub> Separation (Journal of Physical Science).
4. Manuscript ID: SEPPUR\_2019\_1110; Title: Synergistic influence of anisotropic 3D Carbon nanotube-graphene hybrid MMM on stability and gas permeation characteristics (Separation and Purification Technology)
5. Manuscript ID: SEPPUR\_2019\_3948; Title: Insight on to mechanical, thermal, long - term, hydrothermal and chemical stability of MMM systems for separation of O<sub>2</sub>/N<sub>2</sub> gas pair (Separation and Purification Technology).
6. Manuscript ID: PSEP\_2019\_1632\_R1; Title: A favored CO<sub>2</sub> separation over light gasses using mixed matrix membrane comprising Polysulfone/Polyethylene Glycol and Graphene Hydroxyl nanoparticles (Process Safety and Environmental).

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## Professional Affiliations

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- Graduate Member of Board of Engineer Malaysia
- Golden Key International Honours Society
- Institution of Chemical Engineers (IChemE)
- Institution of Engineers Australia
- Alumni of University of Adelaide- Student

## References

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