

ALOKA WEERASEKERA

+60 14-834 7882 | alokaweerasekera1@gmail.com | LinkedIn | alokaweerasekera.com

Chemical Engineering undergraduate with hands-on experience in process simulation, manufacturing operations and laboratory research. Skilled in Aspen Plus, MATLAB and COMSOL Multiphysics, with practical exposure to plant commissioning, process safety, equipment inspection and SOP development. Completed process-design projects in hydrogen generation, CO₂ compression and sustainable chemical processing, with a strong interest in process engineering, optimisation and energy systems.

EDUCATION

Monash University Malaysia <i>Bachelor of Engineering (Honours) in Chemical Engineering; Minor in Sustainable Processing</i>	Feb 2025 – Expected Feb 2028 CGPA: 3.29/4.00
Monash College <i>Diploma of Engineering</i>	Feb 2024 – Jan 2025 CGPA: 4.00/4.00; WAM: 89

ENGINEERING EXPERIENCE

Research and Development Intern <i>Miracle Agro (Pvt) Ltd</i> – Developed SOPs for the safe handling, storage and use of hydrogen peroxide, phenol, benzalkonium chloride and acetic acid for a new poultry-disinfectant manufacturing facility. – Supported construction and commissioning through grid-line layouts, stirred-tank agitator installation and equipment inspections. – Inspected mixing tanks for leaks and corrosion and supported replacement of a deteriorating flow tube, contributing to process safety and equipment reliability. – Selected to compere a national poultry convention involving VEGA Group China and Noble Vet Science India, demonstrating stakeholder communication.	Feb 2024 – Jun 2024 Colombo, Sri Lanka
Undergraduate Researcher <i>Catalyst Laboratory, Monash University Malaysia</i> – Investigated P-doped photocatalysts using a gas-evolution reactor and UV-Vis spectrophotometry; identified a band-gap reduction from 2.632 eV to 2.480 eV. – Interpreted experimental results and documented methodology, analysis and conclusions in a university technical report.	Mar 2025 – Mar 2026 Kuala Lumpur, Malaysia

SELECTED TECHNICAL PROJECTS

Chemical Looping Hydrogen Generation <i>Aspen Plus, MATLAB</i> – Built a CLHG process model with reactor modelling, utility analysis and cost estimation; developed an independent MATLAB energy model to validate reactor energy consumption. – Evaluated reactor conditions to increase H ₂ production from 266.2 to 272.3 ktpa (+2.3%), quantifying the cold-gas-efficiency reduction from 84.51% to 82.85% for design trade-off assessment.	Jul 2025 – Nov 2025
Multistage CO₂ Compression for Urea Production <i>Aspen Plus</i> – Compared two-, three- and four-stage compression with intercooling and moisture knockout for CO ₂ delivery at 100 bar and 30°C; selected a four-stage design reducing duty by 24.4%, operating cost by 23.8% and residual moisture from 0.7771 to 0.1427 mol%.	Feb 2026 – Jun 2026
Biodiesel Production from Palm Oil <i>Process Design, UV-Vis</i> – Designed and conducted batch transesterification of palm oil, achieving 92.63% overall yield and 97.83% fatty-acid methyl ester content.	Feb 2025 – Jun 2025
Rice-Straw Bio-Butanol Process Design & LCA <i>PFD, Process Design, LCA</i> – Led biomass-preparation design and developed the PFD for a 1 tonne/day ABE fermentation plant producing 99.24 wt% butanol; proposed a water-recovery and polishing loop with a calculated 45.2% reduction in freshwater demand.	Feb 2026 – Jun 2026

LEADERSHIP & INDUSTRY ENGAGEMENT

President <i>Engineers Australia Monash Malaysia Student Society</i> – Lead a 10-member committee delivering industry workshops, career sessions and technical site visits attracting 30+ engineering students per event on average. – Coordinated industry engagement with PETRONAS, SD Guthrie and MEASAT, including the PETRONAS “Graduate to Engineer” career session and a PETRONAS PDCC technical site visit covering equipment safety, remote monitoring and industrial operations.	Feb 2026 – Present Kuala Lumpur, Malaysia
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TECHNICAL SKILLS

Process Engineering: Process simulation, material & energy balances, reactor modelling, process optimisation, utility analysis, PFD development, process design, cost estimation
Plant & Manufacturing: Plant commissioning, process safety, manufacturing operations, equipment inspection, equipment reliability, SOP development, chemical handling
Software & Programming: Aspen Plus, MATLAB, Simulink, COMSOL Multiphysics, Microsoft Excel, Python
Laboratory: UV-Vis spectrophotometry, gas-evolution reactors, batch-reactor operation
Professional Development: Introduction to PID Control and Tuning – Yokogawa Electric Malaysia (Expected Sep 2026); Introduction to GHG Accounting – WINST Academy / TÜV SÜD (Expected Oct 2026)