

Ratchaphon Phonpoon

Chemical Engineering · Process Simulation & Refinery Optimization

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Available for on-site internship · Jun 2027 – May 2028 (12 months)

PROFILE

Master's student at KMUTT's Chemical Engineering Practice School (ChEPS), seeking a 12-month on-site industrial internship in process engineering. Brings hands-on refinery experience from Thaioil — rigorous Aspen HYSYS models built from plant data and validated against real operation — and a B.Eng. with **First-Class Honours (GPA 3.70)**. Motivated by process optimization that delivers measurable energy and economic gains.

EDUCATION

King Mongkut's University of Technology Thonburi (KMUTT), Bangkok

M.Eng. Chemical Engineering (English Program) · Chemical Engineering Practice School (ChEPS)

2026 – 2028 (expected)

Developed with MIT on the Practice School model — CHEPS is a ChE master's with an industrial placement. Year 2 is spent on-site in industry on team technical projects.

B.Eng. Chemical Engineering · GPA 3.70, First-Class Honours

2022 – 2026

U-ChEPS: Petroleum & Petrochemical track

Coursework (grade A): Petroleum Refining · Chemical Plant Safety · Process Equipment Design · Heat & Mass Transfer Equipment Design · Fluid Mechanics · Data Analytics & AI

EXPERIENCE

Thaioil Public Company Limited, Sriracha, Chonburi

Jun – Nov 2025

Technologist Intern, Process Technology · Basis of B.Eng. senior project

- Built a rigorous **Aspen HYSYS** model of an integrated crude distillation, vacuum distillation and hydrotreating train from live plant data and ASTM D86 / D7169 assays, then **validated it to within 5%** of actual operation on product flow rates and temperatures.
- Quantified **heat-exchanger fouling across the crude preheat train** to evaluate energy losses and support data-driven cleaning-schedule planning.
- Ran an overhead-pressure case study on a distillation splitter column and identified an optimized setpoint with an estimated **six-figure (USD) annual benefit**.

PROJECTS

Hydrogen Plant (Steam Methane Reforming) · M.Eng. Design Project

2026 (in progress)

Building an **Aspen Plus** flowsheet with literature kinetics for the primary reformer and the high- and low-temperature shift reactors. Utilizing **Aspen Energy Analyzer** for utility placement; now evaluating equipment sizing and stream costs.

FAME Biodiesel from Used Cooking Oil · B.Eng. Capstone Design

2026

Owned process design and optimization for the group: modeled the transesterification reactor and separation train in Aspen HYSYS to maximize yield, supporting a **projected \$31.6M annual profit** on market-aligned feedstock.

Room Access Card-Reader System · Dept. of Chemical Engineering, KMUTT

2026

Replaced a paper logbook with a card-reader access log on the department's local network, covering **400 students** and staff. Tested the reader hardware and troubleshooted the network setup on site until the system logged about **50 scans** a day reliably, then trained security guards and faculty staff and wrote a one-page user guide; in daily use since Sep 2026.

SKILLS

Process simulation: Aspen HYSYS (proficient) · Aspen Plus (kinetic reactors, design specs, optimization, recycle / tear-stream convergence)

Process engineering: heat-exchanger fouling analysis · process equipment design · process economics

Data & digital: Python (data analysis, machine learning) · Power BI · Excel Solver · Claude AI & Other LLMs

LANGUAGES AND ACTIVITIES

Languages: Thai (native) · English: **TOEIC 950 / 990** (CEFR C1)

Student Speaker, Chemical Engineering outreach: Open House, KMUTT (Oct 2024; 40+ prospective students) and Roadshow, Assumption College Rayong (Sep 2026; ran a hands-on filtration workshop for 30 high-school students).