



ChE Master's Programs



Chemical Engineering Practice School (ChEPS)

King Mongkut's University of Technology Thonburi (KMUTT)

Roadshow Presentation for Academic Year 2023

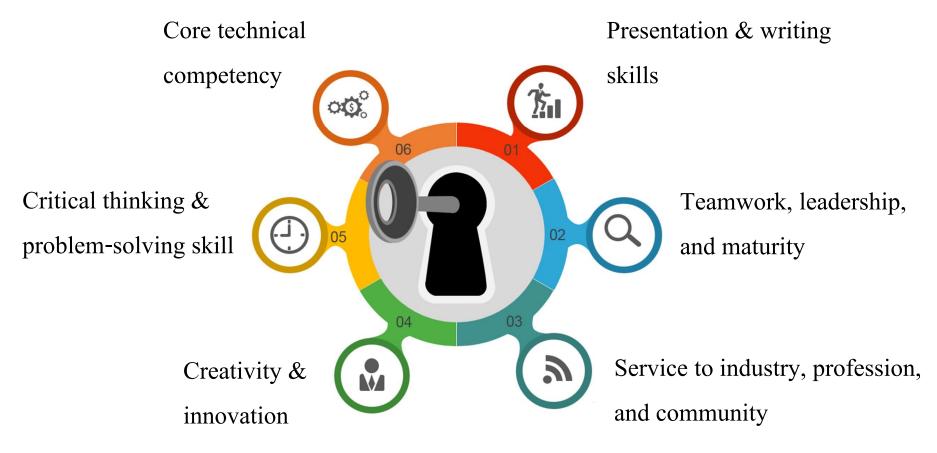
Dr. Hong-ming Ku Program Director

Three ChE International Master's Curricula

- 1. Academic Research (AR)
 Regular AR
 AR+ (+ = Internship)
 Monthly stipend of 3,000 Baht or
 6,000 for GPAs above 3.0 and 3.5,
 respectively
- 2. Chemical Engineering Practice School (ChEPS)
- 3. Biopharmaceutical Engineering Practice School (BioPhEPS)
- Both ChEPS and BioPhEPS require a short 6-month 6-credit research thesis and a 5-month 6-credit internship.
- > AR requires a 12-credit research thesis and no internship.
- AR+ requires a 12-credit research thesis and a short 2.5month 3-credit internship
 ²

Excellence in Engineering Practice

Crucial attributes for well-rounded engineers and researchers



Learning Through Practice School

- What is an Engineering Practice School?
- □ A new learning paradigm: "Learning by Doing"
- Practice school is one form of Work-Integrated Learning (WiL).
- □ Engineering curriculum with compulsory practical training

 \rightarrow intensive yet practical learning



Why Practice School?

- Why Engineering Practice School?
- Graduating engineers possess:
- □ Very little hands-on experiences.
- □ Inadequate communication skills, particularly English.
- → Companies must invest substantial resources to re-train starting engineers.





ChEPS (Chemical Engineering)

□ A flagship Master's program in chemical engineering at KMUTT

□ Modeled after M.I.T.'s David H. Koch School of Chemical

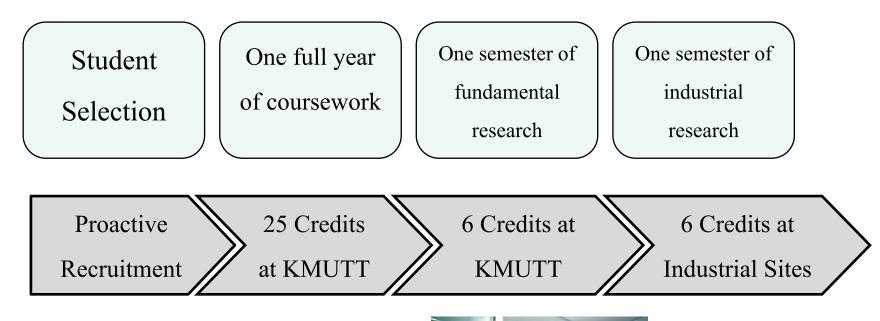
Engineering Practice

□ Initiated in 1997 with the following partners:



โครงการทักษะวิศวกรรมเคมี

How ChEPS Works











ChEPS Curriculum

- 2-year Master's program (30-40 students/year)
- Intensity, problem solving, and soft-skill development









- Applied Thermodynamics
- Applied Mathematics
- Transport Phenomena
- Process Optimization
- Process Dynamics & Control
- Petroleum Process Chemistry
- Reaction Engineering and Kinetics
- Engineering Management













Practice Sites and Research



Research Projects:

- Modeling & simulation
- Fuel cells and catalysis
- Environmental and clean technology
- Biomolecular engineering,
 biotechnology & waste engineering
- Energy, polymers, membranes, etc.

- Thai Oil Plc. (ThaiOil)
- □ SCG Chemicals (e.g. TPE, ROC, SMPC)
- □ PTT Global Chemical Plc. (PTT-GC)



Extra Components in ChEPS

Opportunities to do research overseas

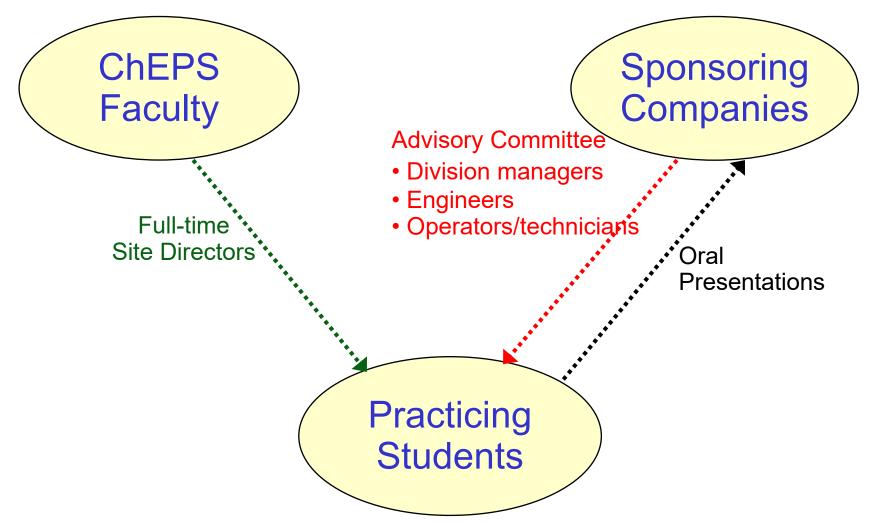
- \checkmark University of Waterloo, Lakehead University, and
 - University of New Brunswick, Canada
- ✓ University of Sheffield, the UK
- ✓ Many universities in Taiwan, including a dual-degree program



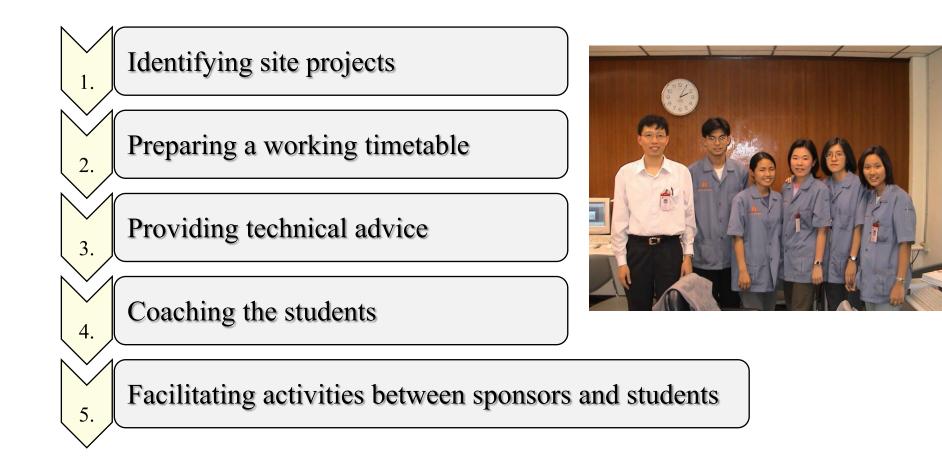
with National Taipei University of Technology

English tutoring and mentoring system.

Working Relations at a Practice Station



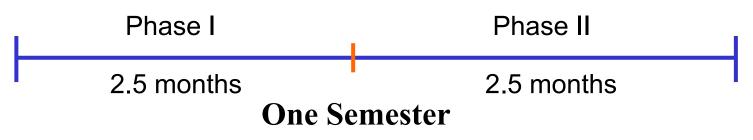
Important Role of a Site Director



3 Tracks of Practical Training (Internship)

Regular ChEPS Track: One semester of placement, one semester of thesis

- Placement consists of 2 phases.
- ➤ Students work in teams of 2 3 people



□ IR-ChEPS (Industrial-Research) Track: One year of placement in

collaboration with SCG-Chem

- > One long industrial project with monthly stipends
- Individual efforts

3 Tracks of Practical Training (Cont'd)

□ AR+ Track: Academic-Research ChEPS

- \succ 1st year coursework: reduced from 25 to 22 credit hours.
- ➤ Half a semester of internship (2.5 months or 1 phase)
- ➤ 12 credit-hours of thesis
- Compulsory conference proceedings
- As opposed to Regular-AR which requires 25 credit hours just like Regular-ChEPS Track but doesn't require any internship

Why Enroll in ChEPS?

X Intensive learning in ChE fundamentals



X Management skills





English presentations



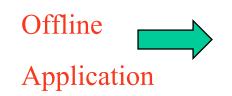
ChEPS Video Presentation

Program Admission

- **G** Bachelor's Degree in Chemical Engineering, Chemical Technology and related fields
- **GPA of 2.70 or higher**
- **C** English Test (Paper-Based TOEFL), SAT Math Test, and interview (in English/Thai)
- Year 2022 enrollment: 30 40 students
- **G** Scholarships are available to qualified candidates

When You Apply:

Indicate your preferences on the application form



Documents to be submitted with this application are: 1. Official transcripts from all universities previously attended 2. A 2×2-inche portrait 3. TOEFL, TOEIC, IELTS, or TETET result (if available)

The completed application may be emailed or faxed directly to: hongming.ku@gmail.com

Program Applied

Last

ed [] ChEPS (Chemical Engineering Practice School) [] BioPhEPS (Biopharmaceutical Engineering Practice School) [] AR (Academic Research) [] AR+ (Academic Research + Internship)

Notes: You may apply to more than one program, but should indicate your preference with a number, starting at 1.
(a) ChEPS and BioPhEPS require a short 6-credit-hour research thesis and a 6-credit-hour internship (practical training)
(b) AR and AR+ require a 12-credit-hour research thesis with a conference proceeding or publication by the end of 2 years. The difference between AR and AR+ is that students under AR+ will undertake a 3-credit-hour internship.

Transcripts, portraits, and English scores can be emailed to hongming.ku@gmail.com.

Notes:

like to apply to (can be just one), and indicate your preference below.

(a) ChEPS and BioPhEPS require a short 6-credit-hour research thesis and a 6-credit-hour internship (b) AR and AR+ require a 12-credit-hour research thesis with a conference proceeding or publication between AR and AR+ is that students under AR+ will undertake a 3-credit-hour 2.5-month internship

 Name *
 First

 Program Applied *
 ChEPS (Chemical Engineering Practice School)

 Check-mark all the programs you

BioPhEPS (Biopharmaceutical Engineering Practice School)

AR (Academic Research)

AR+ (Academic Research + Internship)



Recent Photo

Scholarships for ChEPS

- 1. Full Scholarships
 - **250,000** Baht per year for 2 years is waived.
 - Some will be funded by ChEPS' sponsors in exchange for employment (ThaiOil)
- 2. Half Scholarships
 - **u** Students pay 125,000 Baht per year for 2 years
- 3. Soft Loans
 - **u** Students pay 125,000 Baht per year for 2 years
 - Soft Loan = Study first, pay later with no interest on the remaining 250,000 Baht

Visit us at

www.cheps-

kmutt.com

Scholarships for BioPhEPS, AR, and AR+

- All admitted BioPhEPS students will receive full scholarships (but no monthly stipends).
- Admitted AR and AR+ students are eligible for:
 1. Full scholarships if their GPAs are above 3.00.
 - 2. A monthly stipend of 3,000 Baht for 2 years if their GPAs are between 3.00 and 3.50.
 - 3. A monthly stipend of 6,000 Baht for 2 years if their GPAs are above 3.50.

For application deadline and interview dates, please see the handout.

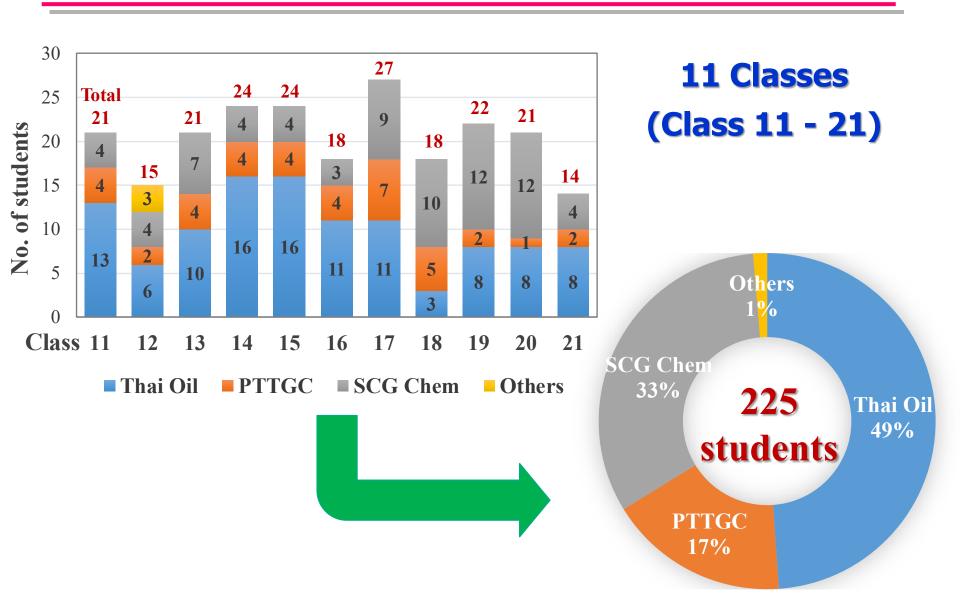


- ChEPS graduates are highly sought-after by industry and employment is virtually guaranteed.
- □ Salary range for ChEPS graduates is 35,000 40,000 Baht per month.
- Typical year-end bonuses at large petrochemical companies, such as SCG Chemicals and PTTGC, are 6 – 8 months (210,000 – 320,000 baht)
- Costs to obtain a Master's degree in the US, Canada, and Australia are about 3.0M, 2.5M, and 2.0M Baht, respectively.

Academic Profile of Admitted Students (26 Classes)

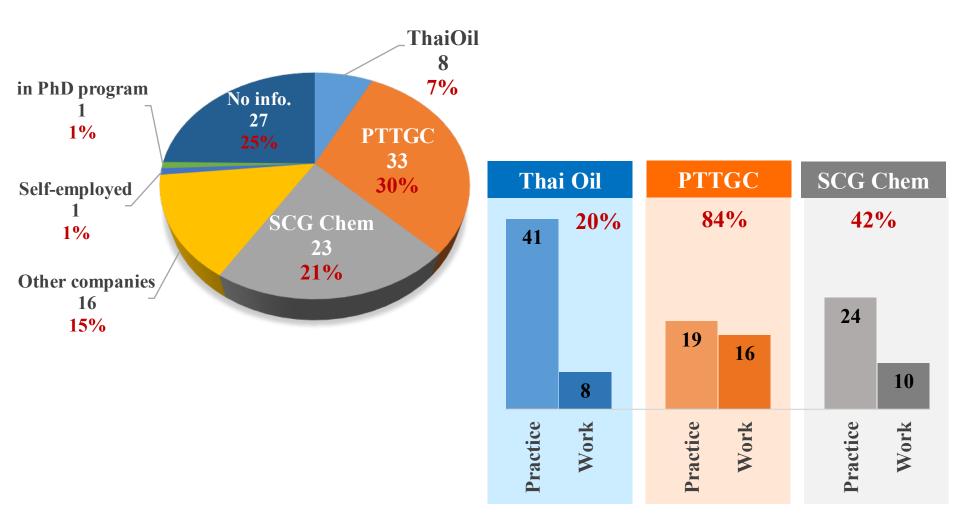
| University | No. of Students | Avg. GPA |
|---|-----------------|------------------|
| Burapha University | 7 | 3.22 |
| Chiangmai University | 14 | 3.42 |
| Chulalongkorn University (Chemical Technology) | 18 | 3.19 |
| Chulalongkorn University (Chemical Engineering) | 41 | 3.14 |
| Kasetsart University | 65 | 3.18 |
| King Mongkut's Institute of Technology Ladkrabang | 80 | 3.29 |
| King Mongkut's University of Technology North Bangkok | 29 | 3.29 |
| King Mongkut's University of Technology Thonburi | 239 | 3.33 |
| Khon Kaen University | 8 | 3.23 |
| Mahidol University | 26 | 3.32 |
| Prince of Songkla University | 4 | 3.37 |
| Silpakorn University | 5 | 3.19 |
| Srinakharinwirot University | 1 | 3.45 |
| Suranaree University of Technology | 3 | 3.50 |
| Thammasart University (ChE & SIIT) | 41 | 3.29 |
| Univ. of Waterloo (Canada), ITSNS (Indonesia) | 2 | Excellent Stand. |
| Total | 583 | 3.28 |

Site Practice Profile of ChEPS' Students



Employment Profile of ChEPS' Graduates

5 Classes (Class 16 - 20) : 109 graduates





ChEPS Class-1 (1997)

"Thank You for Your Attention"

โครงการทักษะวิศวกรรมเคมี mical Engineering Practice School (ChE



ChEPS Class-25 (2021)