

# TAIWAN-KMUTT INTERNSHIP PROGRAM (TKIP)

July – August 2019

KING MONGKUT'S UNIVERSITY OF TECHNOLOGY THONBURI

Bangkok, Thailand



126 Pracha-uthit Road  
Bangmod, Thungkru, Bangkok 10140  
[www.kmutt.ac.th](http://www.kmutt.ac.th)

In Collaboration With



## Program Agenda for Opening and Closing Ceremonies

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### Monday July 1, 2019

- TKIP students arriving and airport pick-up by KMUTT
- TKIP students are to check into Heliconia Residence at KMUTT Bangmod Campus
- Accompanying professors from Taiwan are to check into hotels

### Tuesday July 2, 2019

- Morning (9:00 am–11:30 am): Opening Ceremony to be presided by KMUTT President
- Participants: KMUTT's executives and faculty members, Taiwanese affiliates in Thailand, professors from Taiwan, Taiwanese and Thai TKIP students, and representatives of host companies
- Afternoon (1 pm): Orientation to Taiwanese students by Dr. Chih-Way Lee of BDI Group

### Wednesday July 3, 2019

- Cultural excursion in Bangkok organized by KMUTT's International Affairs Office

### Thursday July 4, 2019

- TKIP students are to depart for host companies and R&D laboratories
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### Wednesday August 28, 2019

- TKIP students are to come back to KMUTT
- TKIP students are to check into Hotel ibis Bangkok Riverside near KX Building

### Thursday August 29, 2019

- Closing Ceremony of TKIP at KMUTT's KX Building
- Presentations by all 17 TKIP students
- Certificate awards ceremony

### Friday August 30, 2019

- Taiwanese TKIP students are to fly back to Taiwan

Notes: TKIP students will be staying at KMUTT for 3 nights during Orientation at Heliconia Residence on Bangmod Campus and 2 nights during closing at Hotel ibis Bangkok Riverside.

## Introduction

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Internship has become an integral part in higher education. Students learn better and faster when they go through practical training in companies before graduating from universities. Better still, overseas internship offers students a chance to be exposed to other cultures at placement. As a result, King Mongkut's University of Technology Thonburi (KMUTT) recently initiated the Taiwan-KMUTT Internship Program (TKIP) with the following aims:

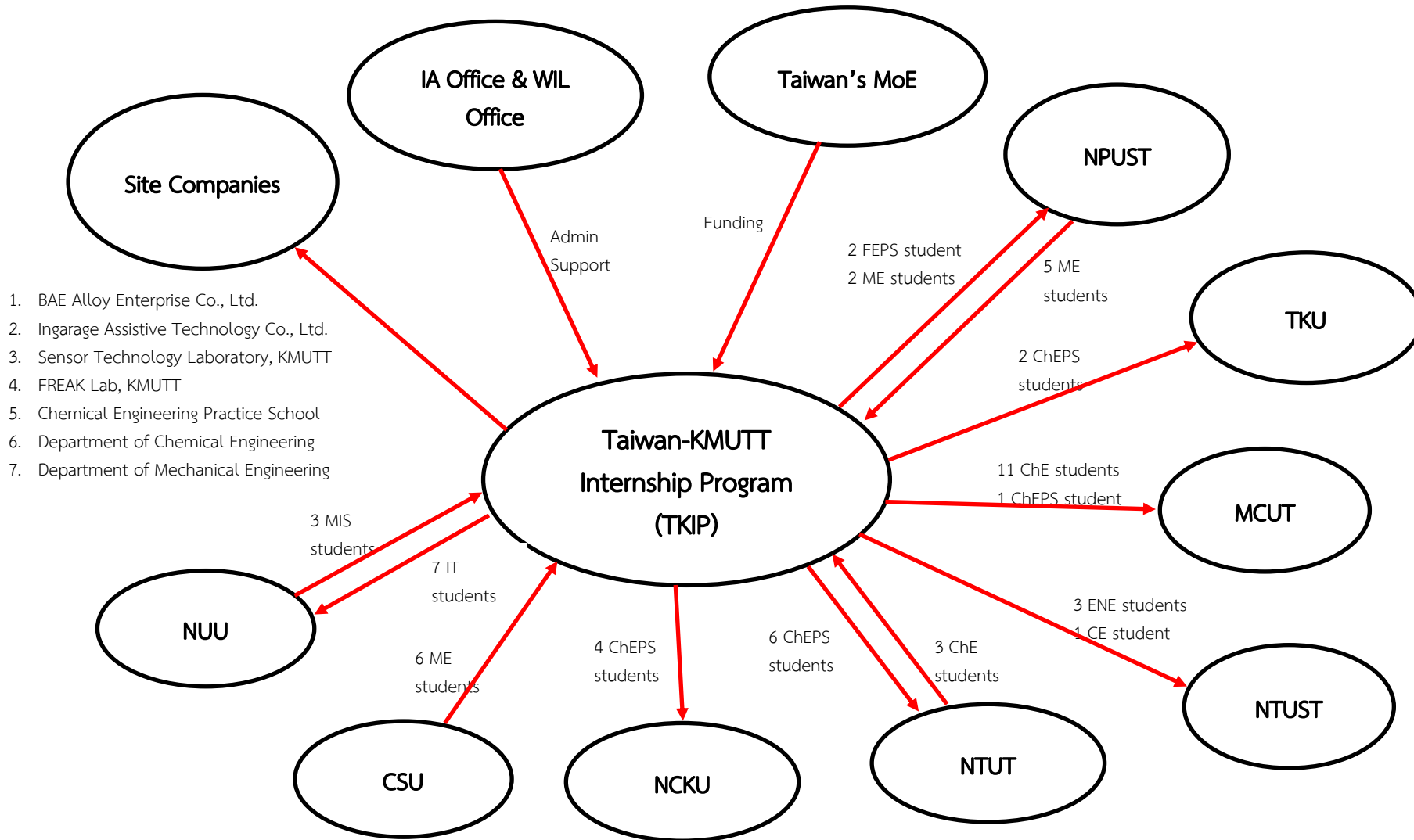
- ❑ Exchange of internship students between KMUTT and selected universities in Taiwan in research labs and private companies.
- ❑ Cultural exchanges and cross-learning between KMUTT and Taiwanese students

The establishment of TKIP is very timely, as the new Taiwanese government elected in 2016 has a new strategic "Southbound Policy" aimed at increasing cooperation and collaboration, both in academics and in trades, with neighboring countries to Taiwan's south. As such, the Ministry of Education (MoE) of Taiwan has seen a significant increase in its budget that will fund more Taiwanese students who wish to do internship in overseas countries such as Thailand, Malaysia, Singapore, etc.

Below is a diagram showing the working structure of TKIP at KMUTT. At present, the four universities in Taiwan who are TKIP's academic partners and will be sending students to Thailand are during July – August 2019 are:

1. National Taipei University of Technology (NTUT or Taipei Tech)  
URL: <http://www-en.ntut.edu.tw/bin/home.php>
2. National Pingtung University of Science and Technology (NPUST)  
URL: [http://www.npust.edu.tw/index\\_en.aspx](http://www.npust.edu.tw/index_en.aspx)
3. Cheng Shiu University (CSU)  
<http://www.csu.edu.tw/csueg/>
4. National United University (NUU)  
URL: <https://www.nuu.edu.tw/>

NTUT is very similar to KMUTT, both in world rankings and expertise, and has a very strong reputation in science and engineering. On the other hand, NPUST is very strong in food science/engineering and agricultural technologies. CSU is a private university dedicated to promoting the cultivation of well-rounded individuals equally adept in science and humanities. Finally, NUU is a well-rounded university with a reputable college of engineering and college of IT and information system management.



CSU = Cheng Shiu University, ChEPS = Chemical Engineering Practice School at KMUTT, FEPS = Food Engineering Practice School at KMUTT, IA = International Affairs, MoE = Ministry of Education, MCUT = Ming Chi University of Technology, NCKU = National Cheng Kung University, NPUST = National Pingtung University of Science and Technology, NTUST = National Taiwan University of Science and Technology, NTUT = National Taipei University of Technology, NUU = National United University, TKU = Tamkang University, WIL = Work-Integrated Learning Office at KMUTT

## Host Companies and R&D Laboratories of Inbound and Outbound TKIP Students

KMUTT has enlisted a number of companies and R&D laboratory to host 17 TKIP inbound Taiwanese students during their July-August internship in Thailand as shown in the table below.

Host Company	Fields of Internship	Number of Students
BDI Alloy Enterprise Co., Ltd.	MIS, Materials Eng., and Mechanical Eng.	6
Ingarage Assistive Technology Co., Ltd.	Management Information Systems	2
Sensor Technology Laboratory, KMUTT	Materials Eng. and Mechanical Eng.	2
FREAK Laboratory, KMUTT	Mechanical Eng.	1
Chemical Engineering Practice School, KMUTT	Chemical Eng.	3
Department of Chemical Engineering, KMUTT	Materials Eng.	1
Department of Mechanical Engineering, KMUTT	Mechanical Eng.	2

On the other hand, a total of 39 outbound KMUTT students (15 Master's students – all from practice schools, and 24 undergraduate students) will be going to Taiwan for their master's research thesis and summer internship, as shown in the table below.

Research Lab and Host University	Fields of Research or Internship	Number of Students
College of Environmental Resources, MCUT	Chemical Engineering	11 (Undergraduate)
Department of Biomechanics Engineering, NPUST	Mechanical Engineering	2 (Undergraduate)
Department of Civil Engineering, NTUST	Civil Engineering	1 (Undergraduate)
Department of Electrical Engineering, NTUST	Electrical Engineering	3 (Undergraduate)
Department of Information Management, NUU	Information Technology	7 (Undergraduate)
Department of Chemical Engineering, MCUT	Chemical Engineering	1 (Master's)
Department of Chemical Engineering, NCKU	Chemical Engineering	4 (Master's)
Department of Chemical Engineering and Biotechnology, NTUT	Chemical Engineering	4 (Master's)
Graduate Institute of Environmental Engineering and Management, NTUT	Environmental Engineering	2 (Master's)
Department of Water Resources and Environmental Engineering, TKU	Environmental Engineering	2 (Master's)
Department of Food Science, NPUST	Food Engineering	2 (Master's)

## Placement of TKIP Inbound Taiwanese Students



	Student Name	Institution	Major	Status	Photograph
<b>BDI Alloy Enterprises Co., Ltd.</b>					
1	Mr. Wei-Syuan Wang	NUU	Information Management	Undergraduate	
2	Ms. Yu-Ying Lin	NPUST	Materials Engineering	Undergraduate	
3	Mr. Meng-Zhang Hong	NPUST	Materials Engineering	Undergraduate	
4	Mr. You-Yu Chen	NPUST	Materials Engineering	Undergraduate	
5	Mr. Juncheng Zhou	CSU	Mechanical Engineering	Undergraduate	
6	Mr. Jung-Teng Lin	CSU	Mechanical Engineering	Undergraduate	
<b>Ingarage Assistive Technology Co., Ltd.</b>					
7	Mr. Guo-Shiang Feng	NUU	Information System	Undergraduate	
8	Mr. Xue-Xin Zhuang	NUU	Information System	Undergraduate	

Sensor Technology Lab, KMUTT					
9	Mr. Guan-Ting Fang	NPUST	Materials Engineering	Undergraduate	
10	Mr. Shuhao Lee	CSU	Mechanical Engineering	Undergraduate	
FREAK Lab, KMUTT					
11	Mr. Chih-Yu Lai	CSU	Mechanical Engineering	Undergraduate	
Chemical Engineering Practice School (ChEPS)					
12	Mr. Bo-Yan Ji	NTUT	Chemical Engineering	Master's	
13	Mr. Yue-Xun Liu	NTUT	Chemical Engineering	Master's	
14	Mr. Hao-Chiun Lin	NTUT	Chemical Engineering	Master's	
Department of Chemical Engineering, KMUTT					
15	Ms. Hsin-Lun Yang	NPUST	Materials Engineering	Undergraduate	
Department of Mechanical Engineering, KMUTT					
16	Mr. Shi Hong Huang	CSU	Mechanical Engineering	Undergraduate	
17	Mr. Cong-Jun Chen	CSU	Mechanical Engineering	Undergraduate	

**Participating Universities:** CSU = Cheng Shiu University, NPUST = National Pingtung University of Science and Technology, NTUT = National Taipei University of Technology, NUU = National United University

## Placement of TKIP Outbound KMUTT Students



	Student Name	Major	Status
<b>Department of Chemical Engineering, MCUT</b>			
1	Mr. Natthakorn Suppasuesanguan	Chemical Engineering (ChEPS)	Master's
<b>Department of Chemical Engineering, NCKU</b>			
2	Mr. Ittisak Promma	Chemical Engineering (ChEPS)	Master's
3	Mr. Charuk Prathuangyukhan	Chemical Engineering (ChEPS)	Master's
4	Mr. Jakkraphat Kongcharoenkitkul	Chemical Engineering (ChEPS)	Master's
5	Mr. Sopanat Hatthakitjanukit	Chemical Engineering (ChEPS)	Master's
<b>Department of Chemical Engineering and Biotechnology, NTUT</b>			
6	Mr. Yossaral Charnkhuang	Chemical Engineering (ChEPS)	Master's
7	Ms. Wilasinee Seesongkram	Chemical Engineering (ChEPS)	Master's
8	Ms. Kaewalee Suksangthong	Chemical Engineering (ChEPS)	Master's
9	Ms. Jidapa Cheksaengthong	Chemical Engineering (ChEPS)	Master's
<b>Graduate Institute of Environmental Engineering and Management, NTUT</b>			
10	Ms. Nicha Noothong	Chemical Engineering (ChEPS)	Master's
11	Ms. Panisara Chairut	Chemical Engineering (ChEPS)	Master's
<b>Department of Water Resources and Environmental Engineering, TKU</b>			
12	Mr. Satin Teerasakkul	Chemical Engineering (ChEPS)	Master's
13	Mr. Worawat Athifuangsirir	Chemical Engineering (ChEPS)	Master's
<b>Department of Food Science, NPUST</b>			
14	Mr. Satayu Tangkulboriboon	Food Engineering (FEPS)	Master's
15	Mr. Supamin Noivun	Food Engineering (FEPS)	Master's



	Student Name	Major	Status
<b>College of Environment and Resources, MCUT</b>			
16	Mr. Nutchapon Horakul	Chemical Engineering	Undergraduate
17	Mr. Panuwat Hongtong	Chemical Engineering	Undergraduate
18	Mr. Pichai Tradnim	Chemical Engineering	Undergraduate
19	Mr. Saranyu Punrod	Chemical Engineering	Undergraduate
20	Mr. Chan Sodsri	Chemical Engineering	Undergraduate
21	Ms. Jittraporn Kaewwichit	Chemical Engineering	Undergraduate
22	Ms. Nutthanan Sahem	Chemical Engineering	Undergraduate
23	Ms. Phatdracharind Wongkoon	Chemical Engineering	Undergraduate
24	Ms. Thanalux Ngampanja	Chemical Engineering	Undergraduate
25	Ms. Kullanan Sukongkaratanakul	Chemical Engineering	Undergraduate
26	Ms. Aisiya Chenkhuntod	Chemical Engineering	Undergraduate
<b>Department of Biomechatronics Engineering, NPUST</b>			
27	Mr. Rujipas Apipatsakul	Mechanical Engineering	Undergraduate
28	Mr. Tatchadon Wattanapornpongsuk	Mechanical Engineering	Undergraduate
<b>Department of Civil Engineering, NTUST</b>			
29	Mr. Teerachot Boonpo	Civil Engineering	Undergraduate
<b>Department of Electrical Engineering, NTUST</b>			
30	Ms. Anchisa Teachalikhidkul	Electronic and Telecommunication Engineering	Undergraduate
31	Ms. Jeerapath Rodrat	Electronic and Telecommunication Engineering	Undergraduate
32	Ms. Suptacha Kornurai	Electronic and Telecommunication Engineering	Undergraduate
<b>Department of Information Systems, NUU</b>			
33	Mr. Nattapat Mapu	Information Technology	Undergraduate
34	Mr. Phanupan Nokkhamdee	Information Technology	Undergraduate
35	Mr. Supanat Tumaram	Information Technology	Undergraduate
36	Mr. Watjakorn Cheamsirikarn	Information Technology	Undergraduate
37	Ms. Manassanan Kachensuwan	Information Technology	Undergraduate
38	Ms. Virada Weerapatsakulchai	Information Technology	Undergraduate
39	Ms. Wanvisa Mongkolsawat	Information Technology	Undergraduate

**Participating Universities:** MCUT = Ming Chi University of Technology, NCKU = National Cheng Kung University, NPUST = National Pingtung University of Science and Technology, NTUST = National Taiwan University of Science and Technology, NTUT = National Taipei University of Technology, TKU = Tamkang University

## Profiles of Sponsoring Companies and R&D Labs for Inbound Students

### BDI Alloy Enterprise (BAE)

URL: <http://www.bdialloy.co.th/>



B.A.E. was founded to cater for die-casting on the type of work with delicate, complex, modernized, B.A.E. boasts its pride on color coating technology for aluminium work which is very far out in time, capability to handle manufacture so effectively and efficiently, satisfying the marketing demand needs with full package.

### Company History

#### October 1991

First established at Soi Prasertsin, Bangplee Yai, Samuthprakarn and 40 employees.

#### March 1994

Increase Registered Capital to 30 Million Baht

#### June 1996

Moved to new factory at Chachoengsao address to increase Die casting, Finishing, Machining and Painting production facilities for Aluminium part.

#### June 2005

Increase Registered Capital to 90 Million Baht for extend growth up business.

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**March 2007**

BAE received Certificate of ISO/TS16949

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**August 15, 2008**

Bangkok Alloy Enterprise Co., Ltd. Changed Name to BDI ALLOY ENTERPRISE CO., LTD. (BAE).

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**October 21, 2009**

Factory #3 expansion for support production and full auto Die casting

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**February 11, 2010**

Increase Registered Capital to 190 Million Baht for extend growth up business

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### Contact Information

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#### English & Japanese

Mr.Hiroshi Tayama

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(669) 8278-7819

[tayama@bdialloy.co.th](mailto:tayama@bdialloy.co.th)



#### Thai & English

Mr. Supot Sriyapong

(66) 38-090-863-68 Ext: 114

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## Ingarage Assistive Technology Co., Ltd.



Ingarage Assistive Technology Co., Ltd. is a start-up company founded by Mr. Nuntipat Narkthong in 2018. The company is part of Business Brotherhood initiated by King Mongkut’s University of Technology Thonburi which aims to use innovation and big data to drive and enhance Thailand’s digital economy.

The company is developing a software platform called Visionear which consists of Visionear eyeglasses that help increase the life quality of people with vision disability. At present, the prototype is capable of differentiating objects with similar shapes and colors, including Thai currency bills. The development team of the company is currently working on other important functionalities of Visionear eyeglasses, including the ability to read bus stops, street signs, and store signs.





## Sensor Technology Laboratory

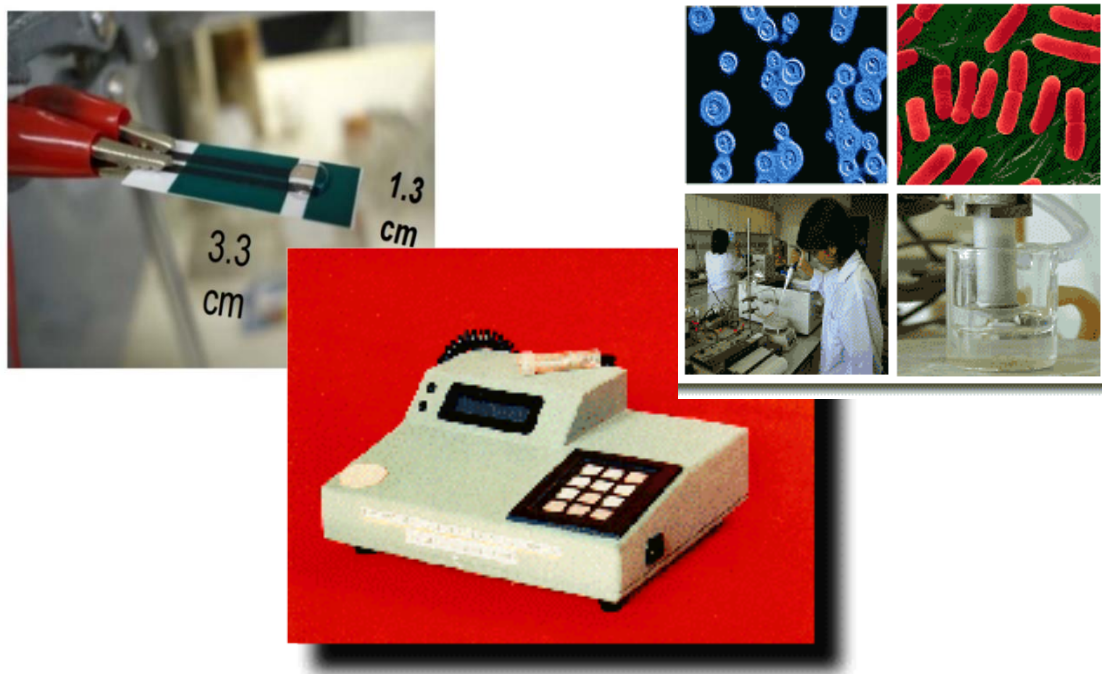
Biosensors and Chemical Sensors Technology Lab at KMUTT, Bangkhuntien Campus, Bangkok, Thailand

URL: <http://www.pdti.kmutt.ac.th/en/index.php/content/view/17/34/>

Lab Director: Assoc. Prof. Dr.Werasak Surareungchai

Tel.: (+662) 470-7474

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Advances in electrochemistry and sensor (biosensors and chemical sensors) research and development have come about due to the need to meet the indigenous demands of the food industry, for environmental analysis, and for biomedical applications. Research is carried out in three areas, for which there is a need to develop existing approaches for better performance of the sensors, improve analytical methods and explore possible new applications. The biosensors and chemical sensors technology group can be subdivided into the following lines of study:

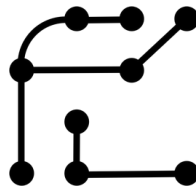
1. *Biosensors*: Microbial BOD sensors, phenol enzyme biosensors, screen-printed glucose oxidase electrodes, and simultaneous determination of glucose and sucrose.
2. *Chemically modified electrodes*: Biocompatible redox polymer membrane, metal microparticles in polymer films, inorganic film modified electrodes, and nafion-coated probe in viscous/resistive media.
3. *Electroanalytical techniques*: Pulse amperometric detection, artificial neuron networks for interpreting voltammetric data, and stripping analysis.

The following are some current research projects in this group.

- Microbial BOD sensors
- Screen-printed electrodes for blood-glucose determination
- Screen-printed electrode for pesticide detection
- DNA-modified screen-printed electrode for Escherichia coli detection
- Development of solid polymer electrolyte of redox gases using interdigitated array microelectrodes

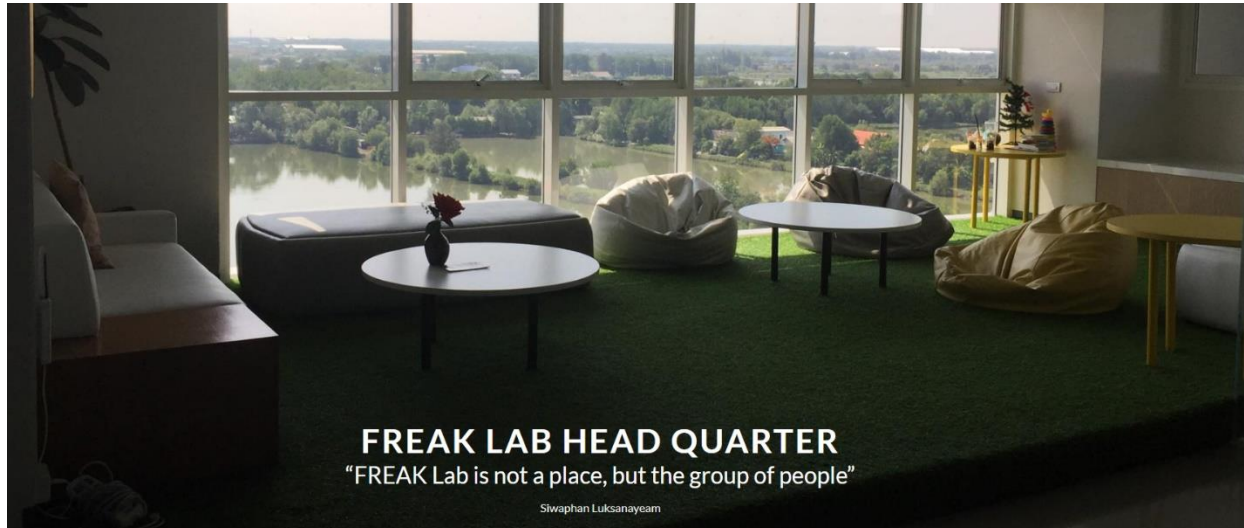
FREAK Lab

Contact: FuturisticResearch@gmail.com



**FREAK  
LAB**

**FUTURISTIC  
RESEARCH**



**FREAK LAB HEAD QUARTER**

“FREAK Lab is not a place, but the group of people”

Siwaphan Luksanayeam

Futuristic Research Cluster (FREAK Lab, where FREAK = Futuristic Research in Enigmatic + Aesthetic Knowledges) is an anti-disciplinary research cluster that converge arts, science, and technology for thinking beyond and exploring the symbiotic relationship between human and the emerging technologies. Found by a group of JSTP alumni and mentors in 2017 inside King Mongkut's University of Technology Thonburi (KMUTT), FREAK Lab use variety of methods and mediums: prototypes, research, arts, and installation to reimagine the possibility of realities. The community of FREAKs are open-minded peoples from multi-disciplines, ages, and expertise that work together on cutting edges projects without bureaucracy and hierarchy. Therefore, FREAK lab is a platform for transforming inspirational futuristic ideas into practical prototypes that have high impact to society in term of aesthetics, knowledges, and economy.

**FREAK LAB IS EVERYWHERE!**

FREAK Lab is not a place, but the group of committed individuals that have passion for creating the futures (and have fun!) Therefore, we welcome everyone from different age, background, and affiliation. However, we do have a head quarter at KMUTT Bangkhuntien.

FREAK LAB HQ

FREAK Lab HQ shared the space with the Sensor technology lab at KMUTT Bang Khun Thian (BKT).

Our HQ is located on the sixth floor of the Bio-process innovation building (BRI), Khwaeng Tha Kham, Khet Bang Khun Thian, Krung Thep Maha Nakhon 10150

<https://goo.gl/maps/F7vow96BHC42>

## Chemical Engineering Practice School (ChEPS)

*where "The trained man wins and practice makes perfect."*

URL: <https://www.cheps-kmutt.com/>



The Chemical Engineering Practice School (ChEPS) Program at King Mongkut's University of Technology Thonburi (KMUTT) is a two-year international program leading to a master's degree in Chemical Engineering. This intensive yet practical program was developed in collaboration with the Massachusetts Institute of Technology (MIT), which has successfully operated the practice school concept in the USA since 1916. ChEPS was officially launched in early 1997. The

program emphasizes close ties and partnerships with industries, with funding and resources from:

- Suksapattana Foundation
- National Science and Technology Development Agency (NSTDA)
- Petroleum Institute of Thailand (PTIT)
- Energy Policy and Planning Office (EPPO), formerly National Energy Policy Office (NEPO)
- Thai Oil Public Co., Ltd.
- SCG Chemicals Co., Ltd.
- PTT Global Chemical Public Co., Ltd.
- Esso Exploration and Production Khorat Inc. and ExxonMobil Limited
- PTT Research and Technology Institute

The ChEPS curriculum consists of spending one year of graduate course work on campus, one semester of individual research projects also on campus, and one semester in the second year on-site working in teams on technical projects. The practice school fosters:

- Fundamentals of chemical engineering
- Problem-solving skills and engineering judgement
- Organization and planning
- Leadership and teamwork
- Communication skills, both verbal and written
- Engineering economics and management



The motivation behind the ChEPS program is to produce high quality professional chemical engineers with a strong command of English to serve the local chemical industry as well as any joint ventures. The major strengths of ChEPS graduates lie in their practical training which enables them to apply fundamental theories to

- Troubleshoot plant operations
- Minimize energy consumptions
- Reduce waste emissions and waste treatment costs
- Lower production costs

## Department of Chemical Engineering

URL: <http://www.chemeng.kmutt.ac.th/>

The Department of Chemical Engineering at King Mongkut's University of Technology Thonburi (KMUTT) is one of the oldest chemical engineering departments in Thailand. The Department consists of both undergraduate and graduate programs.



The undergraduate program consists of one class of International Program and two classes of Thai Programs. On the other hand, the graduate program consists of the following curricula:

1. PhD program
2. Regular Master's program
3. Chemical Engineering Practice School (ChEPS) program (international)
4. Biopharmaceutical Engineering Practice School (BioPhEPS) program (international)

One TKIP student will be hosted by Dr. Chutima Kongvarhodom in her R&D lab which focuses on corrosion and CFD modeling.



### Dr. Chutima Kongvarhodom

B.E. in Chemical Engineering, KMUTL, Thailand

M.S. in Petrochemical Technology, Chulalongkorn University, Thailand

PhD in Chemical Engineering, University of New Brunswick, Canada

**Research focus:** Corrosion; computational fluid dynamics modeling; plating and nuclear nonproliferation; safeguards and security

Email: [chutima.kon@kmutt.ac.th](mailto:chutima.kon@kmutt.ac.th)



## Department of Mechanical Engineering

URL: <http://www2.me.eng.kmutt.ac.th/>

The Department of Mechanical Engineering at King Mongkut's University of Technology Thonburi (KMUTT) is one of the biggest engineering departments at the university and is at the forefront of research and innovation in the field.



The Department consists of the following academic programs:

1. Doctor of Engineering Program in Mechanical Engineering
2. Master of Engineering Program in Mechanical Engineering
3. Master of Engineering Program in Automotive Engineering (International Program)
4. Bachelor of Engineering Program in Mechanical Engineering
5. Bachelor of Engineering Program in Mechanical and Energy Engineering
6. Bachelor of Engineering Program in Automotive Engineering

Two TKIP students will be hosted by Assoc. Prof. Dr. Teeranoot Chanthasopeephan whose R&D lab focuses on biomechanics and medical robotics, and Assist. Prof. Dr. Saroj Saimek whose R&D lab focuses on control systems under actuated mechanical systems.



**ธีรนุช จันทโสภณ (Teeranoot Chanthasopeephan)**  
รองศาสตราจารย์ (Associate Professor)

Ph.D. (Mechanical Engineering), Drexel University, U.S.A., 2006  
M.S. (Mechanical Engineering), University of Michigan, Ann Arbor, MI, U.S.A., 2001  
B.S. (Mechanical Engineering), University of Pennsylvania, Philadelphia, PA, U.S.A., 2000

Biomechanics and Medical robotics

**Profile**

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**สร้อย ไทรเมฆ (Saroj Saimek)**  
ผู้ช่วยศาสตราจารย์ (Assistant Professor)

Ph.D. (Control Science and Dynamical Systems), University of Minnesota, U.S.A., 2003  
M.S. (Mechanical Engineering), Vanderbilt University, U.S.A., 1995  
วศ.บ. (วิศวกรรมเครื่องกล), มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี, ประเทศไทย, 2531

Control systems especially for under actuated mechanical systems.

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