

# CUSE Newsletter

A semiannual newsletter of Regional Centre for Manufacturing Systems Engineering, Chulalongkorn University (Chula Systems Engineering - CUSE)

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## A note from

### CUSE Newsletter's Editor



Dear CUSE community,

It has been almost three years since the pandemic buffeted Thailand. Although "COVID-19" is one of the greatest threats that affects the whole world, it could also be regarded as a driver that moves the world forward - in a good way, of course.

Many innovative and evolutionary technological solutions, for example, have been continuously initiated, during the pandemic, due to the radical changes in people's lifestyle – all of which have been proven useful not only in business-related activities but also in those of our daily new-normal life.

While people now are more comfortable with online activities, we believe that some off-line activities are still crucial and irreplaceable. That is the reason why we have tried so hard to bring back the face-to-face learning experience to our students. And, we are pleased to inform you that, from July 2022 onwards, all modules will resume in a hybrid setting, in which students are allowed to join the discussion with module tutors and all classmates at the CUSE!!!

In addition to the return of face-to-face learning in the upcoming semester, we are going to launch a new degree program setting that allows CU's undergraduate students to enroll for WMG master's modules in their senior year. With this so-called integrated degree program, you would be able to earn the MS's degree a lot faster than usual.

We expect that the upcoming semester will be a good starting point for all of us and we are looking forward to welcoming all of you at the CUSE.

**Asst.Prof. Pisit Jarumaneeroj**  
CUSE Newsletter's Editor

# In conversation with

**Gornekhun Jarupornpanich**  
**Managing Director, KPCON**  
**Co., Ltd.**

Why do you apply for the dual degree at WMG?  
(CUSE)

The dual degree program between University of Warwick and Chulalongkorn University is one of the best programs that you could find in Thailand – without a doubt. As you may also know that Chulalongkorn University keeps producing qualified graduates who are pushing our country forward, being a part of this program at Chulalongkorn University is indeed a great pride of mine.

What are the benefits of our program from both academic and practical perspectives?

If you wish to just earn a master's degree easily without putting much effort, this program may not suit you. This program is no joke with all the subjects and project simulations that you have to do during classes. More importantly, the post module assignments really improve your thought process in terms of both engineering and management that you can apply in real life.

What are your impressions regarding our program?

Connection is everything in the business world. CUSE has done a very good job in screening prospective students. I, personally, have chances to make business deals with two of my classmates. So, other than knowledge and connections that I gain from the program, I also make money (but, this should not be emphasized much, of course). Although, this program may take only a year or two to be completed, friendships and fond memories that I have experienced are rather strong – and they have already been proven useful.

Please give us comments related to the program, learning environment, working opportunity, thesis advisor, or anything that you want to say.

Before joining this program, I have to admit that I am afraid of writing a thesis. Nevertheless, my thesis advisor is very supportive, and he could be regarded as one of the experts in the field. My perception of thesis has been gradually shifted from being afraid to being more confident. I do not know how to express my gratitude to my thesis advisor, who allows me to conduct research related to my interest. However, I am confident that my comment would be useful for those who are interested in this program. Do not be afraid of this program because of what you have heard of, but be eager to join us, one of the perfect dual programs in Thailand – and maybe in the world.

# Research Corner

by Asst.Prof. Pisit Jarumaneeroj, the Secretary of CUSE

COVID-19 is known as a recent pandemic that severely affects the whole world, since it was first identified in Wuhan, in 2019. Although, billions of COVID-19 vaccine doses were already administered to interrupt the spread of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the main cause of COVID-19, the number of confirmed COVID-19 cases still increased, and recently topped the five-hundred-million milestone on April 14th, 2022 (about 15 months after it reached 100 million cases on January 25th, 2021).



In the early stage of vaccine rollout, COVID-19 vaccines were rather scarce and there were controversies regarding the allocation of such vaccines, i.e. whether to allocate such vaccines to those with higher risks of developing severe symptoms or those with higher risks of transmission. In order to answer the abovementioned question, Asst.Prof. Pisit Jarumaneeroj has thence conducted research concerning the efficacy of various COVID-19 allocation strategies, whose results are summarized in an academic paper entitled "An epidemiology-based model for the operational allocation of COVID-19 vaccines: A case study of Thailand", in Computers and Industrial Engineering. Those who are interested in this paper may download the full paper via the following link without charges, <https://doi.org/10.1016/j.cie.2022.108031>.

## An epidemiology-based model for the operational allocation of COVID-19 vaccines: A case study of Thailand

This paper addresses a framework for the operational allocation and administration of COVID-19 vaccines in Thailand, based on both COVID-19 transmission dynamics and other vital operational restrictions that might affect the effectiveness of vaccination strategies in the early stage of vaccine rollout. In this framework, the SIQVRV model is first developed and later combined with the COVID-19 Vaccine Allocation Problem (CVAP) to determine the optimal allocation/administration strategies that minimize total weighted strain on the whole healthcare system. According to Thailand's second pandemic wave data (17th January 2021, to 15th February 2021), we find that the epicenter-based strategy is surprisingly the worst allocation strategy, due largely to the negligence of provincial demographics, vaccine efficacy, and overall transmission dynamics that lead to higher number of infectious individuals. We also find that early vaccination seems to significantly contribute to the reduction in the number of infectious individuals, whose effects tend to increase with more vaccine supply. With these insights, healthcare policy-makers should therefore focus not only on the procurement of COVID-19 vaccines at strategic levels but also on the allocation and administration of such vaccines at operational levels for the best of their limited vaccine supply.



## Integrated Degree Program

A new opportunity for undergraduate students to join CUSE

Recently CUSE and WMG have reached an agreement to initiate a new academic degree setting that allows CU's undergraduate students to enroll for WMG master's modules in their senior year – all of which could be counted as a part of the Dual Master's Degree Program operated by CUSE and WMG. Under this so-called integrated degree program, the students will be able to earn the MS's degrees a lot faster. They are also allowed to enroll for two WMG modules in the partner's centers, located in the UK, Hongkong, or Singapore, without additional fees. Please visit our website for more information: <http://cuse2.eng.chula.ac.th>

# Commencement Ceremony



From May 19th to 20th, 2022, Chulalongkorn University has held a commencement ceremony for students graduating in the 2020 Academic Year. In this academic year, the CUSE had 13 graduates and we would like to congratulate them on their success.

1. Architecture / Built Environment
2. Art & Design
3. English Language & Literature
4. Linguistics
5. Modern Languages
6. Computer Science & Information Systems
7. Engineering - Chemical
8. Engineering - Civil & Structural
9. Engineering - Electrical & Electronic
10. Engineering - Mechanical, Aeronautical & Manufacturing
11. Petroleum Engineering
12. Chemistry
13. Environmental Sciences
14. Geography
15. Materials Science
16. Physics & Astronomy
17. Accounting & Finance
18. Business & Management Studies
19. Development Studies
20. Economics & Econometrics
21. Education
22. Law
23. Politics & International Studies
24. Social Policy & Administration
25. Sociology
26. Sports-related Subjects

## Chula Ranks 1<sup>st</sup> in Thailand for 26 Subjects

by



CHULA COMMUNICATION CENTER (CCC)

 CHULALONGKORN UNIVERSITY

### CU Rankings

The latest results of the QS World University Rankings by Subject 2022 have been announced on April 6, 2022, where Chulalongkorn University was ranked the first in Thailand for 26 subjects, including:

- Art & Humanities in Five Subjects,
- Engineering & Technology in Six Subjects,
- Natural Sciences in Five Subjects,
- Social Sciences & Management in 10 Subjects.

At the global level, there were also four subjects of Chula that ranked among the top 100 in the world, namely:

- Performing Arts
- Engineering – Petroleum
- Development Studies
- Social Policy & Administration

Find out more about the QS World University Rankings by Subject 2022 at <https://www.topuniversities.com/university-rankings/university-subject-rankings/2022/arts-humanities>  
Source: <https://www.chula.ac.th/en/news/70561/>



# Chula World's TOP 16 for Global Impact

NO.1 in Thailand for 3<sup>rd</sup> Consecutive Year



On April 27, 2022, the Times Higher Education (THE) Impact Rankings have released the results indicating that Chulalongkorn University was ranked No. 1 in Thailand for the 3<sup>rd</sup> consecutive year and top 16 in the world (out of 1,524 institutions from 110 countries). This ranking was also the highest ranking ever given to a Thai university.

In terms of the United Nations' Sustainable Development Goals (SDGs), Chulalongkorn University has earned outstanding scores in following SDGs;

SDG 3 – Good Health and Well-being: **ranked 16th** out of 1,101 institutions worldwide (up one place),

SDG 9 – Industry Innovation and Infrastructure: **ranked 26th** out of 785 institutions worldwide (improving its position by 34 places),

SDG 14 – Life Below Water: **ranked 26th** out of 452 institutions worldwide,

SDG 15 – Life on Land: **ranked 16th** out of 521 institutions worldwide (improving its position by 34 places),

SDG 17 – Partnerships for the Goals: **ranked 10th** out of 1,438 institutions worldwide (improving its position by 34 places).

Source: <https://www.chula.ac.th/en/news/72382/>

# Chula as One of the Top 10 Universities in the World



Ranked by



## Top 10

## Top 20

**17** PARTNERSHIPS FOR THE GOALS

**No.1 in Thailand**

Partnerships for the Goals **Ranked 10th** out of 1,438 Universities

**↑ 34 ranks**

**3** GOOD HEALTH AND WELL-BEING

Good Health and Well-being **Ranked 16th** out of 1,101 Universities

**No.1 in ASEAN** **↑ 1 Rank**

**15** LIFE ON LAND

Life on Land **Ranked 16th** out of 521 Universities

**No.1 in ASIA**

## Top 30

**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE

Industry Innovation and Infrastructure **Ranked 26th** out of 785 Universities

**No.1 in ASEAN** **↑ 34 Ranks**

**14** LIFE BELOW WATER

Life Below Water **Ranked 26th** out of 452 Universities

**No.1 in ASEAN**

**4** QUALITY EDUCATION

Quality Education **World's top 101-200**

**8** DECENT WORK AND ECONOMIC GROWTH

Decent Work and Economic Growth **World's top 67**

**11** SUSTAINABLE CITIES AND COMMUNITIES

Sustainable Cities and Communities **World's top 66**

**No.1 in ASEAN**

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

Responsible Consumption and Production **World's top 80**

# Around the Campus

## Two Chula Projects Shortlisted in THE Award Asia 2022 for Technological Innovation and Support for Students

Two of Chulalongkorn University's projects have been internationally recognized and shortlisted for the "THE Award Asia 2022" in the categories of "Technological or Digital Innovation of the Year" and "Outstanding Support for Students".

The 'Robotic Innovation for Stroke Patients; Haxter Robotics' Project was nominated for the 'Technological or Digital Innovation of the Year' category.

The 'MindSpace' project is on the list in the 'Outstanding Support for Students' category.



Created by Chula Student Wellness Unit, "MindSpace" is a web application that promotes, prevents, and monitors Chula students' mental health.  
Source: <https://www.chula.ac.th/en/news/73292/>

## Motto

Those who could think would thrive over those who could do.  
Engineers, though, had better strive for both, i.e. Think - and do - as well.

Professor Phra Charoen Wisawakam  
Longest-serving Dean of Engineering, Chulalongkorn University  
(from 11 June 1929 to 18 June 1961)