Preface and Welcome Speech (ICEIT 2020)

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PREFACE
(The 1st International Conference on Engineering and Industrial Technology, ICEIT 2020)

The 1st International Conference on Engineering and Industrial Technology 2020 (ICEIT 2020) is organized by Faculty of Engineering and Industrial Technology, Silpakorn University, Thailand together with 7 co-hosts: 1. Chengdu University, China, 2. National Institute of Technology, Toyota college, Japan, 3. Yamaguchi University, Japan, 4. Kumamoto University, Japan, 5. Universiti Teknologi PETRONAS, Malaysia, 6. Bio-Circular-Green-economy Technology & Engineering Center (BCGeTEC) and Center of Excellence on Catalysis and Catalytic Reaction Engineering (CECC) of Chulalongkorn University, Thailand and 7. Electricity Generating Authority of Thailand.

Since the affected by COVID-19 outbreak, the conference organizers offer the hybrid meeting which is both onsite at the conference venue, the ZIGN Hotel, Pattaya, Thailand, and virtual online to those authors who are unable to attend the conference due to any traffic difficulties in September 11-13, 2020.

The options presented here were intended to assist those in need of special arrangements. For information of plenary and keynote sessions, discussions and Q&A sessions, it was already shown in the website ICEIT2020 (http://iceitsu.org/Home/Home.aspx) as follow,

1. For Plenary and Keynote speakers, we were actively working so we can set up a video-teleconference connection with Plenary and Keynote speakers during the session. We ensured there was a laptop running Zoom (preferred). Before the conference, Plenary and Keynote speakers were invited to rehearse for the conference. The talk was recorded as a spare in case we had a problem on connection on the conference date.

2. For normal presenter, the authors can present a video-teleconference connection during the session or submit a video and PowerPoint of the authors’ presentation via Admin message in your account in advance before the conference date. The video presentation must be in English with displaying presenter view, and should not be longer than 12 min. If there are any question in case of video presentation, the chair of session can send the questions to the authors and the authors can respond via Admin message.
The 1st International Conference on Engineering and Industrial Technology 2020 (ICEIT 2020)
11-13 September 2020, Thailand

Welcome Speech: President, Silpakorn University, Thailand

Asst. Prof. Chaicharn THAVARAVEJ

First of all, on the behalf of Silpakorn University, I would like to express my warm welcome and sincere appreciation for your participation in the 1st International Conference on Engineering and Industrial Technology 2020 (ICEIT 2020).

For the year 2020, I would like to sincerely thank to Faculty of Engineering and Industrial Technology, Silpakorn University and co-host universities from China, Japan and Malaysia for organizing the ICEIT 2020. We strongly believe that we will have a fruitful cooperation in the areas of engineering and technology and our friendly relationship will be strong concerted development. I am sure that the conference will be a successful venue for knowledge exchange among researchers, and also strengthen the network of national and international researches in the future.

Finally, I sincerely wish The 1st International Conference on Engineering and Industrial Technology 2020 (ICEIT 2020) has a great success, and I hope that our exchange and cooperation with ICEIT conference as well as with other activities will be continued and reach a new level.
Welcome all of you to the 1st International Conference on Engineering and Industrial Technology 2020 (ICEIT 2020). The conference was held on September 11–13, 2020 at the ZIGN Hotel, Pattaya, Thailand. ICEIT 2020 was a major hosted by Silpakorn University, Thailand together with 7 co-hosts: 1. Chengdu University, China, 2. National Institute of Technology, Toyota college, Japan, 3. Yamaguchi University, Japan, 4. Kumamoto University, Japan, 5. Universiti Teknologi PETRONAS, Malaysia, 6. Bio-Circular-Green-economy Technology & Engineering Center (BCGeTEC) and Center of Excellence on Catalysis and Catalytic Reaction Engineering (CECC) of Chulalongkorn University, Thailand and 7. Electricity Generating Authority of Thailand.

ICEIT 2020 aims to bring together researchers, engineers and practitioners who work in the area of engineering and industrial technology. The scientific theme of ICEIT 2020 has a wide spectrum of six tracks, Track 1 Food and Biotechnology, Track 2 Chemical, Mechanical and Energy Engineering, Track 3 Material Engineering, Track 4 Electrical Engineering, Electronics, Computers Telecommunications and Information Technology, Track 5 Manufacturing Systems, Engineering management and Logistics, and Special Track – which is established from the esteem research grants i.e. e-Asia, IRN, NSTDA Chair Professor.

On behalf of the conference organizers, I would like to give a special thanks to the special issue of Processes (Q2 WOS, Impact factor 2.753), Engineering Journal (Q2 Scopus, SJR 0.23), Science, Engineering and Health Studies (Scopus, SJR 0.11), a proceeding IOP Conference Series: Material Science and Engineering (CPCI of WOS and Scopus SJR 0.2) for acceptance those papers for publications.

Finally, on behalf of the Faculty of Engineering and Industrial Technology, Silpakorn University, I would like to say deeply thank you to co-hosts and acknowledge the conference organization team for hard work during the past year. I am sure that the conference will be a successful venue for knowledge exchange among researchers, and also strengthen the network of national and international researches in the future.
GREETING MESSAGE FROM CO-HOST INSTITUTES
Welcome Speech: President, National Institute of Technology (NIT, Kosen) Toyota College, Japan

Prof. Dr. Tomohiko TAGAWA

On behalf of National Institute of Technology (NIT, Kosen) Toyota College, I would like to congratulate the opening of International Conference on Engineering and Industrial Technology (ICEIT) 2020. I would also like to thank all the participants and committee members with great respect. Without the enthusiasm of all, it is not possible for ICEIT 2020 to be conducted under COVID-19 pandemic situation.

Now, whole the world recognized the importance of sharing scientific information properly and that it is possible not only getting together at one place but also in front of your computer system when the border is still closed. I hope ICEIT 2020 would bring together researchers, engineers, and practitioners over the world who work in the areas of engineering and industrial technology with a wide spectrum of topics.

For us, NIT(Kosen) Toyota College, it is great honor to be one of the co-host institutes of this conference. I appreciate our MOU with Silpakorn University helped us to contribute ICEIT. Lastly, with great appreciation to committee and supporting staff members, I wish all the participants would enjoy this conference very much.
Welcome Speech: President, Chengdu University, China

Prof. Dr. Qingyuan WANG

Dear President Chaichan Thavaravej, dear chairperson, partners and supporters of ICEIT, dear researchers and engineers all over the world, ladies and gentlemen, Thanks to the host, Silpakorn University, a warm, strong and enduring friend of Chengdu University since 2015, I am honored to be invited to give the speech and also have teachers from our School of Mechanical Engineering take part in this comprehensive forum to learn about the most advanced trends and achievements in engineering and industrial technology. Firstly, I would like to introduce Chengdu University. Established in 1978, it grows fast and has got very good rankings in 40 years: this year, Chengdu University ranks the 266th in Best Chinese Universities and 903rd globally in the International Natural Index Ranking. With over 115 overseas partners from 32 countries and regions, it attaches great importance to internationalization. Particularly for our cooperation with Thailand, we have invited a great many excellent Thai experts, including Princess Sirindhorn and Mr. Chaphiporn who won the 2018 Chinese Government Friendship Award for lecturing; CDU Sichuan Provincial Research Institute of Thai Studies was selected in the National and Regional Research Center List of the Ministry of Education. Moreover, we have boosted the establishment of International Sister City Relationship between Chengdu and Chiang Mai. As you may know, CDU will be the Athlete’s Village of the 31st FISU Summer World University Games Chengdu 2021. Meanwhile, an International Presidents Forum will be held in Chengdu University. Hence, we sincerely invite presidents and delegations from your universities to visit, enjoy and participate next year. Last but not the least, please allow me to extend my sincere appreciation to all the attendees. With your unremitting efforts and generous sharing of novel and innovative thoughts, this conference will definitely direct us on how we should collaborate in the post-pandemic era. May this conference a big success!
Welcome Speech: Dean of Graduate School of Sciences and Technology for Innovation, Faculty of Engineering, Yamaguchi University, Japan

Prof. Dr. Hiromori TSUTSUMI

It is my great pleasure and honor to give you all a congratulatory address to ICEIT 2020, Thailand. I hope that the conference will be a good opportunity to build good relationships with the scientists, the engineers, and the students who attend from Thailand, Japan, and other countries.

I would like to introduce our Faculty, Faculty of Engineering, Yamaguchi University to you all. The original school of our Faculty was established about 80 years ago, 1939. We have acquired an excellent reputation for the high-level research and for providing a high level of quality education. We have the seven departments dedicated to fundamental engineering and the Graduate School of Sciences and Technology for Innovation which has offered excellent post graduate programs through its Masters and Doctorate courses since 2016.

Our Faculty is also focusing on international exchanges of the researchers and students based on the cooperation agreements with universities in many countries. We also have partnership agreements with the universities in Thailand. We signed an MOU in 2019 with Silpakorn University. Asst. Prof. Dr. Worapon Kiatkittipong, one of the members of the organization committee of ICEIT 2020, is a key person of the MOU collaboration between Faculty of Engineering and Industrial Technology, Silpakorn University, and our Faculty. Dr. Worapon Kiatkittipong visited our Faculty last year and discussed with Prof. Dr. Izumi Kumakiri, our Faculty member, about bio-ethanol separation and purification technology. This opportunity led to conclusion of the MOU.

I hope that the good relationships established through the conference will be handed over to the next generation researchers and students of the countries who attend the conference.

Finally, I would like to also express my sincere thankfulness to the contributors of the conference who made all this possible and I wish you all have fruitful time with the conference.
Welcome Speech: Director, Bio-Circular-Green-economy Technology & Engineering Center (BCGeTEC), Thailand

On behalf of Bio-Circular-Green-economy Technology & Engineering Center, Department of Chemical Engineering, Faculty of Engineering, Chulalongkorn University, it is our great honor to be one of the co-host institutes of the International Conference on Engineering and Industrial Technology (ICEIT) 2020. Our strong collaboration between Chemical Engineering Departments at Chulalongkorn University and Silpakorn University has lasted for more than 15 years with very fruitful research outputs. We appreciate this long-term collaboration.

As a co-host institute, it is a great pleasure to welcome you to the ICEIT 2020 which brings together experts, researchers, professors, scientists, engineers, postdoctoral fellows, and students, providing them with the opportunity to share and discuss their findings and achievements, and to address challenges in Engineering and Industrial Technology field. We would like to thank all speakers, delegates, participants and guests for their participation, and also thank the committee members and staffs for making the ICEIT 2020 possible on both conventional and online platforms in response to the unusual COVID-19 pandemic.

We wish that all the participants of the ICEIT 2020 enjoy the scientific program and take this great opportunity to expand their research networks.
Welcome Speech: Deputy Director, Division for Multidisciplinary Global Education, Center for International Education, Kumamoto University, Japan

Prof. Dr. Armando T. QUITAIN

Firstly, on behalf of the director of our newly established Center for International Education and our faculty members, I congratulate the organizers for the successful preparation and execution of this first ever “International Conference on Engineering and Industrial Technology” despite the many challenges brought about by the global COVID-19 pandemic!

Silpakorn University, the host of this international conference, has been an active partner of Kumamoto University since the signing of the Memorandum of Understanding for academic and student exchanges in 2018. For over 2 years, we have been actively exchanging students and faculties for academic and research collaboration. This active collaboration will be further supported by our newly established Center for International Education.

Here at the center, we train future global leaders that will take lead in facing the challenges of our globalized modern society. We offer multilingual, multicultural, and multidisciplinary studies courses aimed at equipping graduates with the skills needed to work on a global scale. These subjects help our students develop deep comprehension of social and natural sciences, learn modern languages, and understand the values of various foreign countries and cultures. Thus, providing them the tools needed to think both comprehensively and globally. The multidisciplinary spectrum of topics in this conference suits the kind of mindset we would like to develop in our students.

Let this event be a venue for us and among participating universities to further strengthen research collaboration and student exchanges with the aim of developing future STI leaders for regional sustainability and improvement of lives in our society.

We wish you success in this first ever “International Conference on Engineering and Industrial Technology”!
Welcome Speech: Chair of Fundamental & Applied Sciences
Department, Universiti Teknologi PETRONAS, Malaysia

Assoc. Prof. Dr. Maizatul SHIMA SHAHARUN

I would like to congratulate Silpakorn University for organising the International Conference on Engineering and Industrial Technology (ICEIT 2020), scheduled on September 11–13, 2020 in Pattaya, Thailand.

ICEIT 2020 is timely in this unprecedented time. The conference makes the perfect platform in sharing insights into the recent research and cutting-edge technologies by renowned speakers and scientists across the globe. It is hoped that through the sharing of knowledge, ideas, and innovations, we can address the latest trends and challenges facing the world and question how we can prepare present and future generations to thrive in this transforming world.

On behalf of the Department of Fundamental and Applied Sciences (FASD) of Universiti Teknologi PETRONAS (UTP), Malaysia, we are honoured to be a part of ICEIT 2020. Established on 1st April 2009, FASD is one of the departments under the Faculty of Science and Information Technology. Currently FASD is offering the following programmes:

- **Undergraduate Studies Programmes**
  - BSc (Hons) in Applied Chemistry
  - BSc (Hons) in Applied Physics

- **Postgraduate Studies Programmes**
  - MSc of Science (by Research)
  - Doctor of Philosophy of Science

This year, FASD will be organising the Southeast Asia Global Innovation Challenge (SEA-GIC 2020) with the theme "Battling Climate Change Through Chemistry" on the 3rd December 2020. This competition is open to all undergraduate students in the ASEAN region. The main objective of this event is to allow participants to pitch their innovative ideas and proof of concept to solve real-world problems involving climate change. We welcome your participation and would like you to visit our website for more information https://www.utp.edu.my.

I convey my warm greetings and felicitations to the organising committee and the participants and extend my best wishes for the success of the conference.
Welcome Speech: Director of Research and Innovation Division, Electricity Generating Authority of Thailand

Sathit KRONGSUT

Dear Distinguished Delegates, Sponsors and Exhibitors,

Welcome,

I would like to congratulate to Silpakorn University for organising the International Conference on Engineering and Industrial Technology (ICEIT 2020), scheduled on September 11–13, 2020 in Pattaya, Thailand.

The influence of disruptive technology and the approach to the age of digital transformation led to this conference (ICEIT 2020), which can be shared analytical data, including the results of experiments from the researches in wide variety of disciplines.

According to the rapid world technology today that we have challenged to manage them for our better life in present and the future. By sharing the innovations knowledge and technology from the famous scientists, engineers and well-known speakers in this ICEIT2020, it can be guided us to cope well with our future trends.

On behalf of the Division of Research and Innovation of Electricity Generating Authority of Thailand (EGAT), Thailand, we are honoured to be a part of ICEIT 2020. EGAT has continuously supported the research and development projects to promote electrical innovation for prosperity in the country.

To improve Thai people's living quality, EGAT employees and outside institutions worked on the research with emphasis on six main purposes as following:

- To replace import of electrical power technologies, materials, and equipment.
- To contribute for peak cuts or improved energy efficiency.
- To develop new energy alternatives for electricity generation.
- To improve efficiency and/or lower production cost.
- To prevent and mitigate environmental and social impacts caused by power operations and associated activities.
- To support social research for the quality development of community life around EGAT’s power plants.

I convey my warm greeting to the organizing committee and participants and best wishes for happiness to the success of this international conference.
The 1st International Conference on Engineering and Industrial Technology 2020 (ICEIT 2020)
11-13 September 2020, Thailand

Committee

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Asst. Prof. Dr. Arunsri Leejeerajumnian (Chairperson of Conference)
Asst. Prof. Dr. Worapon Kiatkittipong (Secretary of Conference)
Dr. Woraruthai Choothian (Treasurer of Conference)
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Dr. Nardrapee Sanchez

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Dr. Nutchapon Chotigkrai

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