PREFACE

On behalf of organizing committee of International Conference on Advanced Mechanical and Industrial Engineering (ICAMIE) 2020, I would like to express my sincere gratitude to all participants and speakers who contribute to make this event a great success. This is the first time for this biennial series of conference which is hosted by Mechanical Engineering Department and Industrial Engineering Department – Engineering Faculty – Sultan Ageng Tirtayasa University, Cilegon – Banten Indonesia. This event is also supported by IOP Conference Series: Materials Science and Engineering.

ICAMIE 2020 was originally scheduled on July 8-9th at Cilegon city, Banten province, Indonesia. However, due to the government’s regulation on social distance related to the pandemic of COVID-19 and the limitation of overseas flights, the onsite presentation was replaced by one-day online presentation at July 8th 2020 via Zoom, organized at Faculty of Engineering, Sultan Ageng Tirtayasa University, Cilegon – Indonesia in collaboration with a professional provider of online video conference.

It is well-known that the concept of Industry 4.0 spread out in every field, including the modern technology, energy, and system which are considered as the key factors for smart industrial transformation. However, this transformation is not without challenges which are required to be solved. For this purpose, ICAMIE 2020 addresses innovations, trends, and recent developments on Sustainable Technology, Energy and System toward Smart and Green Industrial Transformation which covers mainly in the fields of Mechanical and Industrial Engineering. There are two sessions of keynote presentations, each consist of two keynote speakers. At first session, an efficient modeling and simulation method and fuel economy standards and labels as the tools for energy efficiency and optimization are presented. Whilst at second session, comprehensive aspects for the implementation of industry 4.0 are discussed. ICAMIE 2020 also have over 100 oral presentations in video format from participants coming from different countries.

Over 100 abstracts have been selected after peer review. Most of them are published in this proceeding (IOP Conference Series: Materials Science and Engineering) and the others are published in specific journals indexed by Scopus.

On behalf of the committee of ICAMIE 2020, we would like to express our thanks for all authors and reviewers who contribute to this proceeding.

Hadi Wahyudi, ST., MT., Ph.D — Chairman ICAMIE 2020
Prof. Dr-Ing Asep Ridwan, ST., MT., IPM — Co-Chairman ICAMIE 2020
PREFACE

I, on behalf of Universitas of Sultan Ageng Tirtayasa, warmly welcome all distinguished authors, guests and participants of International Conference on Advanced Mechanical and Industrial Engineering 2020 (ICAMIE 2020) held on July 8th, 2020 in Faculty of Engineering Universitas Sultan Ageng Tirtayasa, Banten Province, Indonesia. It is a great honour for us to share knowledge to all of you.

ICAMIE 2020 is organized by both Mechanical and Industrial Engineering from Faculty of Engineering, Universitas Sultan Ageng Tirtayasa. The theme of this conference is “Development of Sustainable Technology, Energy, and Systems toward Lean and Green Industrial Transformation”. This year, ICAMIE aims to raise awareness of industry revolution 4.0 and higher industrial efficiency in all major aspects, to address challenges of the implementation of industry 4.0 principles, and to provide solution for them. Besides, this international conference is expected to enhance the possibility of collaboration among the participants and gain benefits of industry 4.0 application in some advanced countries like Taiwan, Germany and many other countries.

In this book of abstract, there are 126 abstracts compiled from different interesting manuscripts of various disciplines of knowledge, not limited to mechanical and industrial engineering. All the 126 manuscripts had been reviewed by some experts from all around the world namely experts from Japan, Australia, Malaysia, Germany, and Indonesia. The published abstracts have passed all required improvement including originality, significance and clarity of the purpose. Our big appreciation is addressed to the participants that have participated to this international conference. We strongly believe that all the manuscripts have potential to be published in the SCOPUS Journal, Q2 and Q4 for journals and IOP publisher for proceeding.

Reviewing process of the submitted abstracts in ICAMIE 2020 was a challenging yet interesting process and largely depend on the goodwill of the reviewers to review the abstracts for conference presentation and publication. We would like to extend our gratitude for all reviewers for their time and effort in reviewing all the submitted abstracts. Moreover, we also thank to the presenters and attendees for their involvement in this ICAMIE 2020. We hope you gain some insights and partners to collaborate further in the future.

Finally, we would like to share our big appreciation to the committee of ICAMIE 2020 that has put considerable efforts for the success of this event. We hope all of us enjoy this event and continue to strengthen our collaboration, friendship and scientific exchange to bring benefits for industries and other related institutions in the future.

Serang, June 30th, 2020
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Prof. Dr. H. Fatah Sulaiman, S.T., M.T.
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KEYNOTE SPEAKERS

Prof. Kaiwei Chu
(Shandong University)
Topic: Discrete Particle Simulation of Complex Particle-Fluid Flows from Fundamentals to Applications.

Prof. T M Indra Mahlia
(University of Technology Sydney)
Topic: Fuel Economy Standards and Labels: The Way Towards an Energy Efficient Automotive Transportation.

Prof. Dr.-Ing Hendro Wicaksono
(Jacobs University Bremen)
Topic: How can Industry 4.0 Support Global Sustainable Development Goals?

Prof. Shuo-Yan Chou
(National Taiwan University of Science and Technology)
Topic: The Implementation of Smart Industry and Smart Factory in Taiwan.
ICAMIE 2020

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## SCHEDULE

| No | Time (WIB)   | Event                                                                 | PIC                  |
|----|--------------|----------------------------------------------------------------------|----------------------|
| 1. | 08.30 – 09.00| Registration                                                          | OC                   |
| 2. | 09.00 – 09.15| Conference Chair Report                                               | Hadi Wahyudi, Ph.D   |
| 3. | 09.15 – 09.30| Opening Speech by UNTIRTA’s Rector                                    | Prof. Dr. Fatah Sulaiman |
| 4. | 09.35 – 09.40| Break for Preparing Session 1                                         | OC                   |
| 5. | 09.40 – 10.15| Speaker 1: Prof. Kaiwei Chu                                           | Moderator            |
|    |              | Topic: “Discrete Particle Simulation of Complex Particle-Fluid Flows from Fundamentals to Applications” |                      |
| 6. | 10.15 – 10.45| Speaker 2: Prof. T.M. Indra Mahlia                                    | Moderator            |
|    |              | Topic: “Fuel Economy Standards and Labels: The Way Towards an Energy Efficient Automotive Transportation” |                      |
| 7. | 10.45 – 11.15| Q & A Session 1                                                       | Moderator            |
| 8. | 11.15 – 11.20| Break for Preparing Session 2                                         | OC                   |
| 9. | 11.20 – 11.50| Speaker 3: Prof. Hendro Wicaksono                                      |                      |
|    |              | Topic: “How Can Industry 4.0 Support Global Sustainable Development Goals?” |                      |
| 10.| 11.50 – 12.20| Speaker 4: Prof. Shou-Yan Chou                                        | Moderator            |
|    |              | Topic: “The Implementation of Smart Industry and Smart Factory in Taiwan” |                      |
| 11.| 12.20 – 12.50| Q & A Session 2                                                       | Moderator            |
| 12.| 12.50 – 13.00| Closing remarks                                                        | Hadi Wahyudi, Ph.D   |