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Conference Proceedings

The 2nd Faculty of Industrial Technology International Congress 2020

International Conference

*Towards Industry 4.0: Challenges and Opportunities
for Industrial Technology and Other Sectors*

January 28 - 30, 2020
Faculty Building, 3rd floor
Campus of Itenas Bandung - Indonesia

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**FACULTY OF INDUSTRIAL TECHNOLOGY INTERNATIONAL CONGRESS
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**“Toward Industry 4.0: Challenges and Opportunities
for Industrial Technology and Other Sector”**

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**FACULTY OF INDUSTRIAL TECHNOLOGY
INSTITUT TEKNOLOGI NASIONAL
BANDUNG**

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PREFACE

WELCOME FROM THE RECTOR

INSTITUT TEKNOLOGI NASIONAL BANDUNG

Dear speakers and participants,

Welcome to Bandung and welcome to Itenas campus!

It is great pleasure for me to welcome you in campus of Itenas Bandung at the 2nd Faculty of Industrial Technology International Congress (FoITIC) 2020.

The theme for the 2nd FoITIC (FoITIC 2020) “Towards Industry 4.0: Challenges and Opportunities for Industrial Technology and Other Sectors”, is very relevant and we are sure that presently the term of “industry 4.0” is one hot issues in over the world.

We believe that scientists and researchers will hand in hand with industrial experts, to create and develop new concept/system related to technologies that enable human to make products and services more efficient in various sector.

I am deeply grateful appreciative to the Faculty of Industrial Technology Itenas, Szent Istvan University Hungary, Universiti Malaysia Pahang Malaysia, Universiti Teknikal Malaysia Melaka, Indonesian Society Reliability, delegates, organizing committee and many others who have contributed to the success of this conference.

I am confident that this event will serve to promote much valuable communication and information exchange among scientist – researcher and industrial expert.

May we have a successful, stimulating, fruitful and rewarding the conference.

Again, thank you for visiting our campus, and let’s hand in hand together to overcome the challenges today, and ready to meet the next challenges.

Dr. Iman Aschuri

Rector

Institut Teknologi Nasional Bandung

PREFACE

WELCOME FROM THE DEAN OF FACULTY OF INDUSTRIAL TECHNOLOGY, INSTITUT TEKNOLOGI NASIONAL BANDUNG

Dear distinguished Guest, Ladies and Gentlemen,

Welcome to the 2nd Faculty of Industrial Technology International Congress (FoITIC) 2020, which is organized by Faculty of Industrial Technology, Institut Teknologi Nasional (Itenas), Bandung – Indonesia, with supported by Szent Istvan University (SZIU) – Hungary, Universiti Malaysia Pahang (UMP) – Malaysia, Universiti Teknikal Malaysia Melaka (UTeM) – Malaysia and Indonesian Society for Reliability (ISR).

The main theme for the 2nd congress is ‘Towards Industry 4.0: Challenges and Opportunities for Industrial Technology and Other Sectors’.

The aim of the Congress is inviting academics, researchers, engineers, government officers, company delegates and students from the field of industrial technology and other disciplines (such as electrical, mechanical, industrial, chemical, informatics, civil, architect, physics, environment, social, economic, design and etc.), to gather, present and share the results of their research and/or work and discuss the future and impact of industry 4.0.

Taking this opportunity, I would like to convey my sincere thanks and appreciations to our keynote speakers and invited speakers from Szent Istvan University Hungary, Universiti Malaysia Pahang, ProcodeCG, Indonesian Society for Reliability, and Industrial Engineering Department Itenas, and national and international scientific committee for their support of this important event. I would also like to invite all participants in expressing our appreciation to all members of the FoITIC 2020 organizing committee for their hard work in making this conference success.

Finally, we wish you all fruitful networking during conference, and we do hope that you will reap the most benefit of it.

Do enjoy your stay in Itenas Bandung campus, and thank you very much!

Dr. Dani Rusirawan

Dean Faculty of Industrial Technology – Institut Teknologi Nasional Bandung
Chairman of FoITIC 2020

ACKNOWLEDGEMENT

The completion of this undertaking could not have been possible without the participation and assistance of so many people whose names may not all be enumerated. The contributions are sincerely appreciated and gratefully acknowledged. However, we would like to express our especial deep appreciation and gratitude to the following:

1. Institut Teknologi Nasional Bandung (Itenas) – Indonesia
2. Szent Istvan University (SZIU) – Hungary
3. Universiti Malaysia Pahang (UMP) – Malaysia
4. Universiti Teknikal Malaysia Melaka (UTeM) – Malaysia
5. Indonesian Society for Reliability (ISR) – Indonesia
6. ProCodeCG – Indonesia

KEYNOTE AND INVITED SPEAKERS INTERNATIONAL CONFERENCE

Prof. Dr. Istvan Farkas (Szent Istvan University)

Prof. Dr. Istvan Farkas is Director of Institute for Environmental Engineering System, Szent Istvan University (SZIU), Godollo – Hungary. He is also Head of Department Physics and Process Control and head of Engineering Doctoral School, at SZIU. He got Doctoral Degree from Technical University Budapest (1985). Presently, a lot of his activities devotes on International professional societies such as: International Solar Energy Societies (ISES), International Federation of Automatic Control (IFAC), European Federation of Chemical Engineering (EFChE), European Thematic Network on Education and Research in Biosystems Engineering, European Network on Photovoltaic Technologies, FAO Regional Working Group on Greenhouse Crops in the SEE Countries, Solar Energy Journal Associate Editor, Drying Technology Journal Editorial Board, etc. He was a visiting Professor in several universities: Solar Energy Applications Laboratory, Colorado University State University, Fort Collins - USA; Department of Energy, Helsinki University of Technology, Espoo - Finland; Institut for Meteorology and Physics, University of Agricultures Sciencies, Vienna - Austria; Laboratory of Bioprocess Engineering, The University of Tokyo - Japan.

Prof. Dr. Rizalman Mamat (Universiti Malaysia Pahang - Malaysia)

Prof. Dr. Rizalman Mamat presently is a Professor of Faculty of Mechanical and Automotive Engineering Technology, Universiti Malaysia Pahang, Malaysia. Previously he was Dean of Faculty of Mechanical and Automotive Engineering Technology. He got Doctoral degree from University of Birmingham, United Kingdom in fuel and energy. Previously, he obtained his BSc and MSc from University Teknologi Malaysia (UTM). His field research interest is Heat transfer, Combustion, Internal Combustion Engine, Alternative Energy, Computational Fluid Dynamics, Propulsion System. Prof. Dr. Rizalman Mamat was visiting Professor at Karlsruhe University of Applied Science Germany (2017), Faculty of Engineering Universitas Abulyatama Aceh, Indonesia (2017), Faculty of Engineering Universitas Gajah Putih Aceh, Indonesia (2017), Department of Mechanical Manufacture & Automation Ningxia University, Yinchuan, China (2016), Department of Mechanical Manufacture & Automation Ningxia University, Yinchuan, China (2015).

Ahmad Taufik, M.Eng., Ph.D (Indonesian Society for Reliability)

Ahmad Taufik, M.Eng, Ph.D (Graduated from Georgia Institute of Technology, USA – 1996) is a lecturer and a professional trainer and consultant. He is member of American Society for Metals (ASM) and American Society for Mechanical Engineer (ASME). He performs research in fatigue and fracture mechanics of oil and gas pipeline. Dr. Ahmad Taufik highly experienced in providing industrial training and consulting work more than 20 projects related to Pipelines Failure Analysis, Risk and

Reliability Assessment, Repair Design, Pipeline Corrosion Protection in Oil and Gas Industries. Dr. Ahmad Taufik has been chairman and speakers for many Oil and Gas International Conferences in Indonesia, (INDOPIPE, MAPREC), Malaysia (ASCOPE), Singapore and China (IPTEC) for the last five years. He is founder of Indonesian Society Reliability (ISR) and presently he is a chairman of the ISR. Since 2006, he was work as part time lecturer at Dept. of Mechanical Engineering, Itenas.

Dr. Marisa Paryasto, ST., MT. (ProCodeCG)

Dr. Marisa Paryasto is a profesional part-time at Electrical Engineering Department – Computer Engineering – Telkom University. She earned the bachelor degree in Electrical Engineering from ITENAS Bandung and the master and doctoral degree in Electrical Engineering from STEI – Institut Teknologi Bandung. She is a member of IEEE and actively reviewing papers for international/national journal and conferences. She is currently an active researcher at Institut Teknologi Bandung and also running several businesses. She is the founder of ProCodeCG, a start up focusing education and research on programming and Information technology, mostly for teaching kids to be able to deal with future’s challenges and technology. She is very experienced in teaching and computer engineering. She is familiar and expert in programming, cryptography, security, Internet of Things, artificial intelligence, machine learning, BlockChain technology and recent technology implementations.

Dr. Fahmi Arif, ST., MT. (Institut Teknologi Nasional Bandung)

Dr. Fahmi Arif has received his Bachelor of Engineering in Mechanical Engineering (ITENAS Bandung, Indonesia), Master of Engineering in Industrial Engineering (ITB Bandung, Indonesia), and PhD in Industrial Computing (UTeM Melaka, Malaysia). Along with his formal education, he also earned several professional certifications. He is a Certified Data Science Professional (certification by IBM). After several years working overseas in the field of education and consultancy as well, currently, he is working in his hometown as a Head of Graduate Program in the Department of Industrial Engineering at Institut Teknologi Nasional Bandung. Along with his career, he has published various articles in some international conferences and journals. He also serves as a reviewer in some local and international journals such as the Journal of Information and Organizational Science and the editorial board for the Journal of Intelligent System. His research interest is in data science, artificial intelligence, and machine learning especially for its application in industrial automation. Currently, he is working in some research projects in the field of Industrial Information Integration and Cyber-Physical System in Industry 4.0 environment.

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