

Preface

Dear colleagues, professors, lecturers, researchers, ladies, and gentlemen! We welcome you to the proceedings book of the selected papers presented at the 4th International Seminar on Fundamental and Application of Chemical Engineering (ISFACHE 2022) held on October 26-27, 2022 (online).

As you may already know, for 2022 the topic of the seminar was “The Role of Chemical Engineering Through Circular Economy to Support Sustainable Development Goals (SDGs)”. A circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products for as long as possible. This is the key concept for creating the sustainable process urgently required in the chemical industry since recently. This gives us a new challenge: how to apply the circular economy model to the existing general/chemical industry from a chemical engineering point of view. In this seminar, we tried to bring up the answers and solutions for the sustainable industrial process based on a circular economy aimed at the creation of cleaner products, sustainable processes and a healthier environment.

The ISFACHE 2022 was held online due to the recent COVID-19 pandemic period followed by the endemic period. The past pandemic was a challenge for the world and now the world must promote reactivation of the economic circular system to support the development in all fields. This challenge is not only for the government, but also for the engineers, researchers, and lecturers who continuously contribute to the sustainable development of the world. This was the main reason for us to raise the topic “The Role of Chemical Engineering Through Circular Economy to Support Sustainable Development Goals (SDGs)” for the seminar. Chemical Engineering is one of the main pillars in achieving Sustainable Development Goals, including the development of sustainable technology such as environmentally friendly fuel, environmentally friendly material processing, and so on.

In accordance with the vision and mission of the ISFACHE organizer, Institut Teknologi Sepuluh Nopember (ITS), which is to become a world-class research university, this international seminar was one of many efforts to make this vision and mission come true. It is also a part of our concern about the contribution of science and technology to enhancing national productivity and competitiveness in Indonesia.

We hope that ISFACHE 2022 will serve for the promotion of collaborations between researchers, lecturers and engineers in the field of chemical engineering to support the development of environmentally friendly technologies not only in Indonesia but all over the world.

Finally, we extend our sincere thanks to the seminar's noteworthy guests and participants for their time and valuable contributions!

Best regards,

Dr. Rendra Panca Anugraha, S.T.

Chairman of the 4th ISFACHE 2022

Institut Teknologi Sepuluh Nopember (ITS), Indonesia

Dr. Eng. Widiyastuti, ST., MT.

Head of Chemical Engineering Department

Institut Teknologi Sepuluh Nopember (ITS), Indonesia

Prof. Dr. Ir. Mochamad Ashari, M. Eng., IPU, A. Eng

Rector of Institut Teknologi Sepuluh Nopember (ITS), Indonesia

Committees

Scientific Boards

Dr. Eng. Widiyastuti, S.T., M.T.

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Yi-Hsu Ju

NTUST – Taiwan

Prof. Manabu Shimada

Hiroshima University-Japan

Prof. Wuled Lenggoro

TUAT - Japan

Prof. Motonobu Goto

Nagoya University-Japan

Prof. Jan Degreve

KU Leuven - Belgium

Prof. Masato Tominaga

Saga University - Japan

Prof. Arsad Achmad

UTM - Malaysia

Prof. Tjandra S

Institut Teknologi Bandung, Indonesia

Prof. Misri Gozan

Universitas Indonesia, Indonesia

Prof. Iryanti Fatyasari Nata

Universitas Lambung Mangkurat, Indonesia

Prof. Heru Setyawan

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Achmad Roesyadi

Institut Teknologi Sepuluh Nopember,
Indonesia

Dr. Sumarno

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Ali Altway

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Sugeng Winardi

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Renanto Handogo

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Mahfud

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Gede Wibawa

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Arief Widjaja

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Tri Widjaja

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Kuswandi

Institut Teknologi Sepuluh Nopember,
Indonesia

Prof. Setiyo Gunawan

Institut Teknologi Sepuluh Nopember,
Indonesia

Dr. Susianto

Institut Teknologi Sepuluh Nopember,
Indonesia

Dr. Sri Rachmania Juliastuti

Institut Teknologi Sepuluh Nopember,
Indonesia

Organizing Committee

Chairman

Dr. Rendra P. Anugraha

Institut Teknologi Sepuluh Nopember,
Indonesia

Co-chairman:

Siti Zullaikah, Ph.D

Institut Teknologi Sepuluh Nopember,
Indonesia

Team Members

Dr. Tantular Nurtono, ST, M.Eng.
Juwari, PhD
Dr. Siti Machmudah
Dr. Suci Madhania
Dr. Lailatul Qadariyah
Dr. Yeni Rahmawati
Firman Kurniawansyah, S.T., M.Eng.Sc., Ph.D
Hakun Wirawasista, Ph.D.
Dr. Kusdianto
Dr. R. Darmawan
Fadlilatul Taufany, Ph.D
Siti Nurkhamidah, Ph.D
Hikmatun Ni'mah, Ph.D
Ir. Nuniek Hendrianie, MT
Orchidea Rachmaniah, ST. MT

Prida Novarita Trisanti, ST., MT.
Rizky Tetrisyanda, ST, MT.
Annas Wiguno, ST, MT
Ni Made Intan Putri S., S.T., M.T.
Irnaningsih, SH
Syarifa Elfira, S.Si
Farid Hidayat, ST
Farid Indra, S.T.
Hari Pitrawan, ST
Evy Sumantri Setyningsih
Sriati
Achmad Wahyudi
Mar'atus Sholekhah, S.Si
Khoirul

Organized by:

