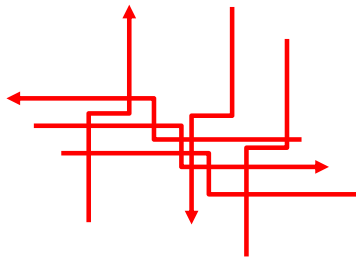




# PROCEEDING

The 5<sup>th</sup> International Conference

**INNOVATION RESEARCH FOR SCIENCE, TECHNOLOGY, AND CULTURE**



**"The Innovation Research on Science, Technology and Culture to Support Industrial 4.0 and Sustainable Development Goals"**

**Faculty of Engineering, November 11, 2019  
Jakarta-Indonesia**



**Organized by:**  
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## OPENING SPEECH BY CO-CHAIRMAN OF UNIVERSITAS PANCASILA FOUNDATIONS

*Assalamu'alaikum Warahmatullahi Wabarakaatuh,*

Ladies and gentlemen,

It is a great pleasure to welcome our honorable guests,

1. Honorable Minister for Industry of the Republic of Indonesia who is represented by chairman of the Ministerial Agency for Research & Development-Bapak Bambang Riznanto, ST.,MT.
2. Distinguished Rector of University Pancasila, Bapak Prof. Dr. Wahono Sumaryono, Apt.
3. Keynote speakers, presenters and participants of IRSTC, ICOSTATEC, International Workshop Heritage and Semrestek 2019.

Praise and gratitude to Allah SWT for His grace and blessed that today we can gather in this opening ceremony of :

- The fifth international conference about Innovation Research on Science, Technology, and Culture (IRSTC) 2019,
- International Competition Student's Creativity in Technology and Culture (ICOSTATEC) 2019,
- International Heritage Workshop 2019; and
- Seminar Rekayasa Teknologi (SemResTek) 2019.

These four events were held coincided with the 53<sup>rd</sup> Universitas Pancasila anniversary, which is on 28 (twenty-eight) of October.

The theme of this conference is "**The Innovation Research on Science, Technology, and Culture to Support Industrial 4.0 and Sustainable Development Goals**". The theme conforms to the current challenges and situation in world wide.

The Sustainable Development Goals (SDGs) were agreed at the United Nations Conference on Sustainable Development in Rio de Janeiro in 2012. There are 17 goals that were to produce a set of universal goals that meet the urgent of environmental, political and economic challenges facing our world. On the other hand, the advance of computers and information technology is improving. The internet becomes easy and cheap to be accessed. This improvement gives an opportunity to support the industrial revolution 4.0. The Indonesian government has promoted and encourage the implementation of industrial revolution 4.0 to increase Indonesian competitiveness.

Many research and studies focus on the industrial revolution and SDGs are performed. Therefore, it is necessary to discuss and exchange improvement via academic meetings such as conferences, workshops, and competitions. Through this conference, I hope that we can get the most benefit of transfer knowledge, research collaboration, exchange ideas, and perspective, for the common progression.

Last but not least, on behalf of the Education and Development Foundation of Universitas Pancasila, I would like to express our gratitude to all the keynote speakers, invited speakers, speakers, sponsors, the committee, participants and all of the parties that support these events.

Thank you very much for your attention and participation. Good day and have a nice conference.

*Walaikumsalam Warahmatullahi Wabarakatuh*

**Prof. Dr. Edie Toet Hendratno, SH., M.Si.**



## OPENING SPEECH BY RECTOR OF UNIVERSITAS PANCASILA

*Assalamu'alaikum Warahmatullahi Wabarakaatuh,*

Ladies and gentlemen,

It is a great pleasure to welcome our honourable guests, keynote speakers, presenters, participants and the sponsor. Thank you very much for your attention and participation of IRSTC, ICOSTATEC, International Workshop Heritage and Semrestek 2019.

We have convened you here for several reasons. This event is to provide an effective media for the sharing of information about innovative research on science, technology and culture. This event is also of importance for creating a network, collecting and coordinating information, so that research planners can avoid double or redundant experiment in this area. Developing advanced technologies requires more than applied research and development. Basic research in science, technology and culture will be the foundation for progress on research technologies. It is creative linkages between basic research and applied technology development that will pinpoint these opportunities.

I am happy to inform all guest, in this year Universitas Pancasila is celebrating the 53th anniversary and we are organizing several events dedicated to this anniversary. In this November we are hosting four events, they are the fifth international conference about Innovation Research on Science, Technology and Culture (IRSTC) 2019, International Competition Student's Creativity on Technology and Culture (ICOSTATEC) 2019, International Workshop Heritage 2019 and Seminar Rekayasa Teknologi (SemResTek) 2019.

The theme adopted in this event is following the challenges and current situation throughout the world. The Industrial 4.0 and Sustainable Development Goals is the main key theme taken of this event. The Indonesian government has promoted and encourage the implementation of industrial revolution 4.0 to increase Indonesian competitiveness so do The Sustainable Development Goals (SDGs) issue.

Many people have put in effort to realize this event. The list is too long to recognize everyone here, but we want to thank the Program Committee, the conference Secretariat, and the staff at Faculty of Engineering. We want to offer a special thank-you to the Dean of Engineering Faculty and also to Fondation of Universitas Pancasila, whose generous support have allowed us to plan the event.

In closing, we thank you again for your participation in IRSTC, ICOSTATEC, International Workshop Heritage and Semrestek 2019 and we hope you enjoy the event.

*Walaikumsalam Warahmatullahi Wabarakatuh*

**Prof. Dr. Wahono Sumaryono, Apt.**



## OPENING SPEECH BY DEAN OF ENGINEERING FACULTY UNIVERSITAS PANCASILA

*Assalamu'alaikum Warahmatullahi Wabarakaatuh,*

Ladies and gentlemen, I believe that all of you have well done through the one day event. It is my great pleasure that you had fruitful discussions though I think one days is not enough.

In this year's conference whose main theme was "**The Innovation Research on Science, Technology, and Culture to Support Industrial 4.0 and Sustainable Development Goals,**" I expected that every participant to make a presentation on Innovation Research on Science, Technology, and Culture as well as problems facing each country, which would make clear the difference in the participating countries' awareness. I wanted you to understand the difference and promote mutual understanding among the participants through the conference.

I observed your excellent presentations and active discussions, so I can conclude that the purpose of the seminar has been completely accomplished. In addition, your positive manners revealed that you have made careful preparations and great efforts for your participation in advance of your arrival in Jakarta-Indonesia.

I would like to pay my deep respect to all the participants for your positive participation in the conference. I hope that what you have learned through the conference will help you a lot in your duties and lead to the develop of the region in the future.

Finally, on behalf of the Organizing Committee, I would like to express my appreciation to all the participants for taking time out of your busy duties to attend the conference.

Thank you for your attention.

*Walaikumsalam Warahmatullahi Wabarakatuh*

**Dr. Ir. Budhi M. Suyitno, IPM.**



## ACTIVITY REPORT BY CHAIRMAN OF ORGANIZING COMMITTEE

*Assalamu'alaikum Warahmatullahi Wabarakaatuh,*

Your excellency Mr. Bambang Riznanto, ST., MT (representing the Ministry of Industry of the Republic of Indonesia)

Our Respected Co-Chairman of Universitas Pancasila Foundation, Mr. Prof. Dr. Edie Toet Hendratno, SH., M.Si.

Our Respected Rector of Universitas Pancasila Mr. Prof. Dr. Wahono Sumaryono, Apt.

Our Respected Dean of Engineering Faculty Mr. Dr. Ir. Budhi M. Suyitno, IPM

Our dearest supporters

Honorable ladies and gentlemen,

It is our greatest pleasure to welcome you all in the 5<sup>th</sup> International Conference about Innovation Research on Science, Technology and Culture (IRSTC), which is in conjunction with International Competition Student's on Technology and Culture (ICOSTATEC), Seminar Rekayasa Teknologi (SemResTek), and The International Workshop Heritage.

The 4<sup>th</sup> (fourth) IRCTC 2017 has been successfully held in Malaysia supported by the Port Dickson Polytechnic. In this year the 5<sup>th</sup> IRSTC 2019 held in Jakarta-Indonesia, which supported by Universitas Pancasila.

Through this conference we can share experience and form networking with the purpose to accommodate the transformation research and innovation toward Industry 4.0 and achieve the sustainable development. We are highly appreciating those whom make an effort to participate and support the conference.

Today will be an exciting day, fulfil with 115 (one hundred and fifteen) oral presentation, 3 keynote speakers, 5 invited speakers (together with the other conference), 10 groups of students to demonstrate their brilliant ideas and to compete with high enthusiastic, and 60 participants in the workshops.

This event was held thanks to the generous support of KEMENRISTEK DIKTI (now under the Minister of Education and Culture), MANUSEA, our sponsors and many others high-commitment individual whom we cannot remark in details. Our special appreciation goes to The Dean of Engineering Faculty, The President and The Foundation of Universitas Pancasila for the continuous support which makes this event happen.

As a closure we are again thank you for your participation in IRSTC 2019 and the other in conjunction events. We highly hope that you can gain many benefits from this day.  
Thank you.

*Wasalamualaikum Warahmatullahi Wabarakatuh*

**Dr. Agri Suwandi, ST., MT.**



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