



io penner

THE ITS WINDOW TO THE INTERNATIONAL WORLD

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editorial

ITS is still heading towards its world-class university goal by 2017. Ever since then, research as an indicator of a successful university, has been intensified in ITS.

In this second edition of IOpenner, we showcase the range of our research, which are dispersed across ten different major areas. We also include some of our most prospective patent products.

We talk about the networks ITS is establishing with partner universities across the globe in 'Postgraduate Corner'. We also have the story of one of our graduates currently studying in Thailand.

Don't forget to read about what students have to say about internationalization in ITS. Also, we are gearing up for our second CommTECH Camp! If you're not part of it now, we are still looking forward to see you next year!

Warm wishes,
ITS International Office (IO) team

hello from ITS!

In pursuing the vision of becoming a research university, ITS has long realized that there are two dimensions to their research endeavors: the first being to offer original contribution to the development of science and technology, the other being to contribute to solving actual problems faced by the public. A significant contribution to the state of the art can only be accomplished through concerted efforts by prioritizing research themes for which the strength and exceptional achievements of ITS researchers have been known.

Research activities along these themes are promoted and managed through Research Centers, in which researchers from various departments and research groups work hand-in-hand to search for a comprehensive answer to a collective problem. Students are most welcome to join in this joint effort by doing research as part of their thesis work through the laboratory-based education scheme.

To achieve fruitful contribution to the people, our researchers have engaged themselves into various research collaborations and consortia. These collaborative efforts commonly involve people from the industry as well as the government, providing a conducive ecosystem for the growth of innovations expected to find its application for the benefit of the public.

This edition of IOpenner offers a concise introduction to the Research Centers presently operating under the ITS Institute for Research and Community Services, together with examples of their research outcomes and achievements. Please kindly accept our invitation to take part in our research campaign, either as research partners or as international students, and to contribute together to the development of science and technology for the wealth and well-being of the people.



Gamantyo Hendrantoro
Secretary, ITS Institute for Research and Community Services



quick recap

ITS Scientist Wins L'Oreal-UNESCO Award



Sri Fatmawati became one of 15 lucky women across the globe to be awarded the L'Oreal-UNESCO For Women In Science International Fellowship Award in March. Her perseverance in discovering natural medicinal properties of sea sponges to cure cancer has become a key factor in her achievement.

TEDx ITS 2: An EscalATED Life



The second TEDx ITS talk was held on 18 May 2013. The show featured the topic 'An EscalATED Life'. Nine highly inspirational speakers came to ITS Pascasarjana Auditorium to talk about how they have transformed their lives, including film director Ipang Wahid. About 250 people attended the event.

Research Center for Energy

Energy is a big issue in many parts of the world, not excluding Indonesia. The research center of energy explores various kinds of alternative energy.

Among the most popular alternatives is the use of gas and geothermal energy. There are also numerous research on bioenergy, including the use of bioethanol from multiple plants, such as rice plants.

One of the latest studies transforms waste energy into electricity. The technology is being implemented in ITS to power up street lights.

Head of the center: Prabowo

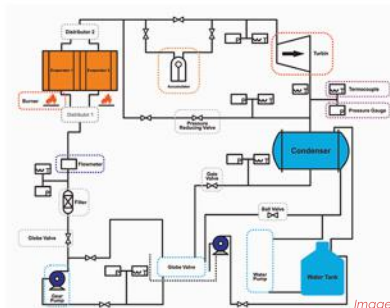


Image: LPPM ITS

the heart of research

Research activities carried out in ITS are organized by the LPPM-ITS, or the ITS Institute of Research and Community Services. The center is comprised of ten smaller units, each with their own fields of concentration. Each research program is dedicated towards providing solutions towards real-life problems around ITS, Surabaya and mainly East Java. Only in this way, research can be truly beneficial for the society.

Research Center for Transportation & Logistics

Land transport is not only a matter of passenger travel. But it also has much to do with logistics. Everyday, tons of logistics are transported to different areas of Indonesia, from rural to urban areas. Therefore, it is a highly important issue which needs a lot of attention. The center has a track record of re-designing the interior of first-class trains in Indonesia and enhancing transport capacity of motorcycles.

Head of the center: Hera Widayastuti



Image: PT. Kereta Api Indonesia

Research Center for Earth, Disaster & Climate Change

The center is most passionate towards spreading awareness on the environment. Amien, the head of the center, actively speaks out about disaster and climate awareness. One of the most crucial issues being addressed by the center is the Lapindo mud flow in Porong, Sidoarjo. The center continually works towards finding the ultimate solution for the highly devastating problem.

Head of the center: Amien Widodo



Image: Ricko Immanuel/ ITS International Office

Research Center for Basic Science

The center conducts researches to explore solutions for critical issues through basics of chemistry, biology and physics. One of their interesting works include application of biotechnology and industriology of local mycorrhiza in *Arachis hypogae* cultivation areas of Bangkalan, Madura.

Head of the center: Surya Rosa Putra



Image: LPPM ITS

Image: L. Shidaina / ITS International Office



Research Center for Environment, Housing and Settlement

Settlements are thriving all around Surabaya and East Java, spurred by rapid urbanization and development. ITS is involved in many studies to determine better housing, settlement and environmental qualities.

Their works include hygienic urinoirs, smart simple housing, and earthquake-proof bricks for homes. They also involved in urban-scale projects, such as the conservation concept for historic sites in Surabaya and determining flood characteristics in polluted rivers across East Java.

Head of the center: Lily Pudjiastuti



Image: LPPM ITS



Image: LPPM ITS

Research Center for Marine

As an archipelagic country, maritime studies are very important to Indonesia. Studies undertaken by the center include development and design of hybrid ships for effective transport between islands as well as artificial reefs as breakwater structures. In the past few years, there has also been a continuous research on bringing back traditional 'trimaran'-style ships for naval use in Indonesia.

Head of the center: Aries Sulistyono

Research Center for Information Technology, Communication, & Robotics

ITS has a long track record of winning various national and international robotics competitions. Beyond it all is a long ambition of information technology, communication and robotics technology development.

This research center has dabbled in projects of developing motion capture technology, intelligent softwares, and real-time information systems. One of their most beneficial research lies in a computer-aided system for early skin cancer diagnostics.

Head of the center: Joko Lianto Buliali

National Ship Design and Engineering Center (NASDEC)

The National Ship Design and Engineering Center (NASDEC) was previously established in 2010. It is the newest of all research centers in LPPM. The center is dedicated towards the development of national shipping resources in Indonesia. The existence of NASDEC in ITS marks its strategic location especially close to Tanjung Perak, one of the main national shipping ports. Through this research center, ITS is actively participating towards building a stronger naval front in Indonesia.

Head of the center:
Triwilaswandio Wuruk Pribadi

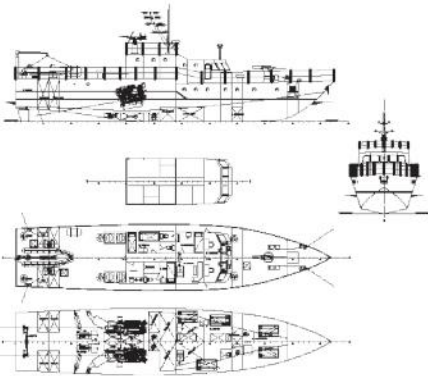


Image: NASDEC Indonesia

Image: Disperindag Pamekasan



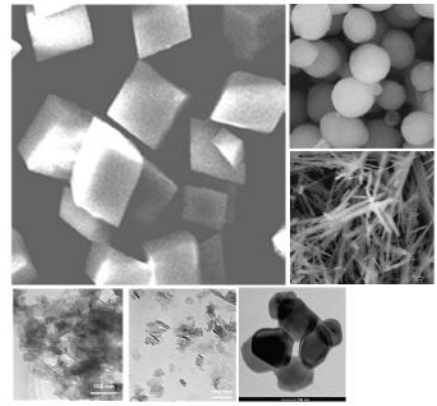
Research Center for Regional Development and Community Empowerment

This center handles many crucial issues in regards to the development of living areas around Surabaya. Regional development and community empowerment often seeks out to give solutions towards societies of lower economic class through applicative and appropriate technology.

One of the communities which have worked together with this center is in Pamekasan, Madura. The society are involved in local, small and medium batik businesses. ITS helped them to develop an open, easy-to-use accounting software and e-commerce system to further benefit their businesses.

Head of the center: Sutikno

Image: LPPM ITS



Research Center for Material and Nanotechnology

Interesting types of research are being done in this center. Starting from the discovery of new materials to alternative uses of particular materials.

One of them includes utilization of silica powder to replace cement in a concrete mix. Another interesting research is the use of limestone as an anti-corrosive layer based on calcite (CaCO_3) nano-particles.

Head of the center: Heru Setyawan

postgraduate corner



Postgraduate Program (PPS) of ITS has a lot of agreements to boost up targets of internationalization. Among its top agreements are fast track and joint degree programs. This does not include agreement with other world class universities such as Asian Institute of Technology, National Taiwan University Of Science and Technology, and Kumamoto University. In addition, ITS also collaborates with a number of universities in France, Germany, and Australia.

"We send many students to study. They are eager to receive our excellent students and the students also encounter great experiences in each country," said Ria Asih Aryani Soemitro, Vice Director of PPS.

The number of international students in ITS also increasing. They come from different countries in Europe, Asia, and Africa to do their research and study. These include students who are studying under scholarships for bachelor, master, and doctoral program in ITS.

Collecting Energy from Waste

Ary Bachtiar Krishna Putra
Prabowo
Wawan Aries Widodo
Budi Rahmat Basuki

Waste is a problem in many areas, especially in Indonesia. Every citizen of the city can produce an average of 900 grams of waste a day, with the composition of 70% organic and 30% inorganic waste. Waste can be beneficial however, if processed in the right way. Using Organic Rankine Cycle (ORC) technology, a special rotor and nozzle is designed to create a 10 kW biomass power plant. The invention takes into account geometry, profile, distance of the nozzle and rotors to increase the turbine efficiency.

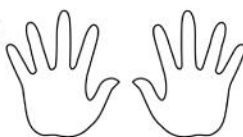
A Healthy Rice Replacement

Sukesu
Surya Rosa Putra
Adi Setyo Purnomo
Teta Mumtaz

Rice is the king of staple food in Indonesia. However, it is not the only food with a high carbohydrate content. Sago is actually a more valuable source of carbohydrates than rice. If managed properly, Sago can be produced until 16.5 ton/ha/year, or three times bigger than productivity of rice.

The invention includes processing Sago flour before being shaped into grains. The process is modified by mixing the ingredients using a shaker incubator at 60°C and 200-rpm. The mixture is then placed in an autoclave to enhance semi-gelatinization. New sago grains are further hardened by storage in the freezer.

prospective patents



GRADUATES ABROAD

Elita Fidiya Nugrahani originally studied Engineering Physics in ITS. She continued to take fast track studies to Asian Institute of Technology (AIT), Thailand.

Elita is an enthusiastic traveler, and was highly excited to be given the chance to study in Thailand. There are at least ten new things which she experienced in the land of the white elephant. On the top of her list is dancing in a cultural show (which she has never done before), watching an opera, having discussions on the upcoming ASEAN economic community with colleagues, experiencing the four seasons, improving her English, trying various foods and even learning photography. Her photography collage was nominated in the Top 10 of ASEAN Community Photo Competition 2013.



volunteers

ITS International Office held an Open Recruitment session for the 4th season ITS International Office student volunteers. As a part of the orientation, new volunteers participated in the ITS IO Teamwork Improvement program. The training was held in Ranu Kumbolo summit, Semeru mountain, Lumajang, East Java. The students spent their time with team-building activities, working together as a team in the scenic place.

"Our adventure in Semeru was so amazing, magnificent. Many obstacles and barriers, but it would never stop us to reach our goal, our dreams. And so our life, it's still a long journey to go. Let's go through together, make it better, and everlasting ever! Keep moving forward ITS International Office" – Anton Frian Yohanes Reynaldo, Events Division

CommTECH camp 2013

After a long period of registration and selection, we have finally determined 40 participants in our second Community and Technological (CommTECH) Camp 2013. We have had overwhelming response since our open registration in March.

In total, we have participants from 14 different countries all over the world. Malaysia, Thailand, Vietnam as well as Pakistan and Japan are just some of them. Our participants range from undergraduate and postgraduate students, international office staffs, lecturers, even university directors.

The camp will be jam-packed with activities. Participants will have the opportunity to be involved in community and technological activities around East Java. The camp will be topped off with a visit to the scenic Mount Bromo. We are definitely looking forward to another eventful camp!

students say...

One of the aspects of internationalization in ITS is giving the opportunity for students to continue their studies overseas. This is highly positive for the students, as they do not only achieve an experience to study, but also to improve other skills such as their English competency, and of course learning different cultures and social norms. It is an exceptional value which can create a better, more progressive learning environment.

Nieko Haryo Pradhito
ITS-NTUST Dual Degree Graduate



Internationalization is very important to a student at university. For students, internationalization can provide opportunities for students to improve their English language and students can be exposed to the current knowledge.

For a country, the internationalization is a way to attract foreign students studying in this country. This could indirectly can increase the number of foreign tourists to the country and be able to introduce the national education system in the world.

Internationalization on Institut Teknologi Sepuluh Nopember (ITS) campus is one thing that is becoming very familiar. Here, I can see many foreign students studying here are composed of a variety of countries including Papua New Guinea, Madagascar, Switzerland, Pakistan and others. With the presence of these students, we can see that the application of internationalization in ITS is increasingly recognized in the eyes of the world. This shows a good development for Indonesia.

Nor Rizan Binti Muhammad
Universiti Teknikal Malaysia Melaka (UTeM)



I had a great chance to join an international summer course program held by Feng Chia University, which opened my mind about internationalization. International recognition is necessary, but it can be completely different in various cultures. Both Feng Chia and ITS are aware about global education recognition. I think it would be great to meet other friends from around the globe to talk about current issues in each country of us in a forum or a similar conference held by ITS.

Bahalwan Apriansyah
ITS Student, Industrial Engineering Department



Internationalization is like globalization; it is when you embrace the world and set up principles, objectives and aims to match your system with worldly standards. I think in doing this, processes such as benchmarking to generate ideas, questionnaires, etc. An important aspect of internationalisation is standardization. you can never embrace the world with systems that are considered below standards.

Locadia Tombido, Zimbabwe
International student in ITS



upcoming events

26 August - 3 September 2013
Community and Technological (CommTECH) Camp

10-14 September 2013
ITS Student & Staff Excursion to Thailand

10-20 September 2013
ITS Staff Internship in Thailand

16 October 2013
ITS International Office Essay Competition deadline

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